American Druggist

Vol. XVII. No. 7. NEW YORK, JULY, 1888. Whole No. 169

[ORIGINAL COMMUNICATION.]

A COLORIMETRIC TEST FOR INDICATING THE MORPHINE STRENGTH OF LAUDANUM.

BY S. J. HINSDALE, OF FAYETTEVILLE, N. C.

DISSOLVE *one grain* of potassic ferri-cyanide in sixteen ounces of water, and add to it *twenty drops* of liquor ferri chloridi.

Place in a 5 or 6 ounce tumbler *one drop* of tincture of opium, U.S.P., and add to it *two drachms* of the above iron mixture; allow it to stand *one minute*, add *three ounces* of water, and observe the shade of blue color developed. You can now try other samples of tincture of opium and compare the shades of color with that produced by the officinal tincture, which will indicate in *some degree* its morphine strength as compared with the officinal tincture.

A drop of a solution composed of *seven grains* of sulphate of morphine (which equals about *three* grains of the *alkaloid*) in *one ounce* of diluted alcohol, treated as above, will develop about the same shade of color as that produced by the officinal tincture, being about the same strength.

It is well to have ready prepared solutions of sulphate of morphine, containing, say, 2, 3, 4, and 5 grains of the *alkaloid* to the fluidounce of diluted alcohol.

They are convenient to compare with the shades of color produced by samples of laudanum.

It is of the utmost importance that the *drops* should be *uniform in size*. I think it best to use a pipette, which must be rinsed with the tincture to be examined. *The iron solutions should be freshly prepared.*

In testing samples of laudanum, it is best to test the *officinal* tincture at the *same time*, using *two* separate tumblers or measures. The observation of color should be made within five minutes after adding the water, holding the glasses over a white surface, and looking down through the liquid.

This iron solution is convenient to use for the detection and estimation, in some degree, of morphia in many mixtures, provided they are free from *tannin*.

Two ounces of a mixture composed of *one drop* of Magendie's solution of morphine in *one gallon* of water, if mixed with *one drachm* of the iron solution, will develop a decidedly bluish-green color. But as the same quantity of a solution of *one grain* of tannin in *fifty gallons* of water, treated in the same way, will produce a *deeper* color, it shows that this solution is of no value as a test for morphia *when tannin is present*.

It was Mr. Armitage's communication about Morphia in *Pharmaceutical Journal and Transactions*, abst. in the April number of the AMERICAN DRUGGIST, p. 70, which induced me to prepare and experiment with this iron solution.

It is possible that a colorimetric test may be made with it to estimate the tannin strength of nutgalls and other vegetable substances.

THE TREATMENT AND DISTILLATION OF PEPPERMINT PLANTS.

BY ALBERT M. TODD. †

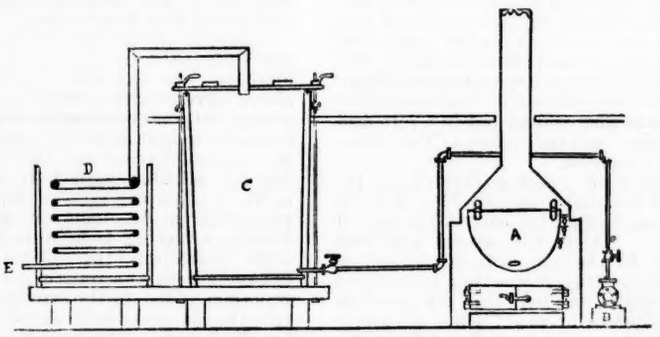
(Paper read before the New York State Pharm. Assoc. in response to query No. 31.)

"It has been claimed that the herb peppermint when freshly cut yields more oil than when dried. Is this so, and does the increased yield of oil compensate for the increased expense of shipping the fresh herb to the distiller?"

THIS question has long been a disputed one, and the discussions have attracted the interest of both scientists and manufacturers. That the importance of making a determination which would be satisfactory and final will be better understood, I will, before stating the results of my experiments, give a brief description of our novel industry, which is rapidly increasing in importance and proportions, prefacing the description with the single remark that distillation is effected with threefold the rapidity from the dry, than it is from the green plants.

There are now (in 1888)* cultivated annually in the United States (almost wholly in the States of Michigan and New York), over twenty thousand tons of peppermint plants, yielding over one hundred and twenty thousand pounds of essential oil, thus requiring on the average the production and handling of about three hundred and fifty pounds of plants in the undried state, for a single pound of the essential oil. There are now in America about two hundred and fifty small distilleries where the crude or natural oil is produced, each distiller distilling, beside his own crop, the plants of about ten neighboring growers on the average, making the number of persons engaged in the industry, as principals, over two thousand five hundred, besides a large number of workmen employed in the cultivation and distillation.

The distillers' charge for working up the plants of other growers has by custom been based upon the number of pounds of oil obtained rather than upon the quantity of plants, the present rate in Michigan being twenty-five cents for each pound of essential oil. This custom is most satisfactory to the grower, as he pays only according to his receipts, but it will be seen that it is not equitable for the distiller *unless the plants are well dried prior to distillation.*



A, steam boiler; B, steam pump for supplying the boiler with water, and, if need be, for furnishing water to the worm-tank; D, worm and worm-tank; E, end of worm from which condensed steam and oil are discharged. The top of the vat passes through the floor above from which the peppermint is introduced into the distilling vat and on to which it is removed when exhausted of oil.*

The manufacturing system may be briefly noticed as follows: The plants having been cut when in full bloom, are drawn to the distilleries either with or without curing, according to the notion of the grower. The essential features of the distillery are, first, a large boiler for the generation of steam; second, a pair of large wooden vats about six feet in height and of equal maximum diameter, which are connected with the boiler by steam-pipes, which enter them at the bottom (two vats being used so that one may be emptied and refilled while the other is running; third, a condensing apparatus, which consists of a series of pipes coated with pure tin, either with or without the ordinary "worm," over which cold water is made to flow continuously, this condensing apparatus being connected by a duplex or "changing valve" with the tops of the distilling vats at pleasure; lastly, the "receiver," in which the essential oil is collected, the ordinary form of which is a metallic vessel about twelve inches in diameter and three feet in height from the bottom of which an exterior pipe leads to a height nearly equal with the body of the vessel. Recently I have constructed a much more efficient and elaborate receiver for rapidly separating essential oils both heavier and lighter than water; but as this paper is not intended as a technical treatise on apparatus, it will not be described here.

About three inches above the bottom of the distilling vats are placed "false bottoms" containing many perforations, underneath which the steam enters from the boiler. Upon this perforated false bottom is placed a strong iron hoop having a diameter nearly equal with the vat, and supplied with heavy cross-bars. Two pairs of strong chains are secured to this hoop, meeting at the top of the vat in a pair of rings, one of which is fastened on either side of the vat, at the top, while it is being filled. This apparatus, as will be seen, is for the purpose of drawing the charge from the vats after distillation.

The apparatus being in position, the plants are thrown in by a workman with an ordinary hay-fork, while two or three others are engaged in "tramping them down." After the vat is about one-third full, a small supply of steam is let in, which softens the plants and greatly assists in packing. When filled, the vat is closed with a steam-tight cover, and the other charge being now distilled, the entire amount of steam is turned on in the new one. The

* From an article by the editor, published in NEW REMEDIES for April, 1882, p. 98.

* During the past few years, the consumption of peppermint has rapidly increased, so that statistics of production and distilleries now given show a marked increase over those given in my former papers on analogous subjects, which may be found as follows: In the "Proceedings of the American Pharmaceutical Association" for 1886, page 121; AMERICAN DRUGGIST for September, 1886, page 161.—A. M. T.

steam comes up through the perforations of the false bottom, and is diffused evenly through the plants. The oil is contained in minute cells entirely in the leaves and blossoms. The action of the steam is twofold: it softens the tissues of the oil-cells, and at the same time, by its heat, causes an expansion of the particles of oil, so that they burst forth from their miniature prisons, and are carried off with the current of steam. The steam, now charged with the essential oil, upon reaching the top, escapes into the condensing apparatus, where it assumes the form of oil and water. Separation takes place in the receiver; the water, being heavier, sinks to the bottom, and is forced by the pressure from within upward and out through the exterior pipe referred to. The oil collects on the top, and is dipped off at pleasure.

As stated, distillation can be effected with threefold the rapidity from the dry plants, for the effect of drying is to soften the plants, allowing a greater quantity to be used for a charge, while such large charge can also be distilled in one-half the time required for a smaller quantity of green plants. But many growers, fearing that a loss of oil results from drying, by diffusion in the atmosphere, cannot be prevailed upon to bring their plants to the distilleries other than in a green state. *The extremes* of difference which I have noticed are as follows: From a charge of two thousand pounds of fine plants, well covered with leaves and blossoms, thoroughly dried, I have obtained *twenty pounds* of essential oil in *thirty minutes*, an hourly rate of two tons of plants and forty lbs. of oil; from a similar charge of very coarse plants, with few leaves and blossoms, distilled in the green state, *less than two pounds* were obtained, *requiring one hour for their distillation.*

Upon a clear day in September, in the middle of the day when no dew or moisture was present, two loads of peppermint plants were cut down side by side at the same time. Both loads were immediately raked up in the fresh state, containing all the natural juices of the plant, then drawn to the scales and weighed. One load was immediately distilled, the other load being spread upon the ground and dried for two days in the sun. At this time the plants had become freed from nearly every particle of moisture, the leaves being so dry and brittle as to break off quite readily in handling. This second load, which had thus been dried in the sun and open air, was now spread out in a loft and exposed to a farther drying and the action of the atmosphere for a little over six months.

The first charge of peppermint, *which was distilled in the green state*, weighed 2,332 lbs. and produced 6 lbs. 9 oz. of essential oil, being one pound of oil for each 355.35 lbs. of plants, or 0.2814 per cent. After the second load had been dried and exposed to the atmospheric action, as stated, for a little over six months, it was then taken from the loft and distilled. I would say here that all the oil in the peppermint plant, as indeed in most, if not all, essential oil plants, is obtained from the leaves and blossoms and this load of plants being extremely dry, and having been handled over a number of times, lost in the handling some of the leaves and blossoms. However, in distilling, the yield was more than one pound of essential oil for each 362.5 lbs. of original green plants, which slight loss (about 2 per cent in the amount of essential oil) is certainly to be accounted for fully by the portion of blossoms and leaves which rattled off in the re-handlings. The charge of peppermint, which was thus fully dried, had shrunk 49.4 per cent of its original weight.

It will thus be seen that, although the plants are very aromatic both before and after cutting, *there is no perceptible loss of the essential oil by the most thorough drying prior to their distillation*, the oil being so tightly sealed in its little prison cells that a force greater than that existing in the atmosphere or the rays of the sun is necessary to free it. Indeed, I have noticed that the leaves which fall off from the plants in dry seasons, and remain upon the ground over winter, even though subjected to the action of rains and snows as well, are often found months afterward to be so strong that one would hardly suppose that any of the strength had passed off. It is known, though, in practical experience, that when the plants are once thoroughly dried and subjected to rains, the water carries off a portion of the oil, acting in that respect as a slight distilling force.

It is not within the scope of the present article to treat of the chemical effect produced upon the oil by the action of the atmosphere, the tests of the oil, etc. Such determinations may be found by consulting the papers referred to in the note below. The principal results of the experiments recorded herein may be summarized as follows: First, in the treatment of peppermint, and such other American essential oils as have been examined, no perceptible loss of essential oil by diffusion in the atmosphere is occasioned by a thorough drying of the plants in the open air at any ordinary temperatures prior to distillation; second, when the drying of the plants is continued through many months, a slight oxidation of the oil in the leaf occurs through contact with the oxygen in the atmosphere, decreasing its solubility, and increasing its specific gravity; also slightly raising its boiling point through the formation of a non-volatile and insoluble resinoid produced by oxidation; third, a long exposure of the plants to atmospheric action prior to distillation does not perceptibly affect the crystallizing tendency of the essential oil, nor other of its physical tests except those noted, so far as investigated; fourth, to obtain the best results, both as to the quality of the essential oil and economy in transportation and manufacture, the plants should be dried as thoroughly as possible without endangering the loss of the leaves and blossoms in handling. Distillation should then take place as soon as convenient, to prevent the oxidation of the oil in the leaf by atmospheric action.

ON POWDERED EXTRACT OF NUX VOMICA.

BY W. SIMONSON, OF CINCINNATI.

(Abstract of a paper read at the last meeting of the Ohio Pharmaceutical Association, held at Columbus.)

THIS paper is written in reply to the query: "What is the best method of removing the oil from the seeds of *Strychnos Nux Vomica*, so that the alcoholic extract may be powdered?"

The advantages of extracts in powder over those in the soft semi-solid condition are apparent to all dispensers, in convenience, saving of time, and in greater uniformity of strength. The extractive matter of nux vomica as obtained by alcohol, and free from oil, readily yields a powder, which is quite permanent; hence the question, what is the best method of removing the oil?

Any oil solvent, while removing the fat easily and completely, takes from this drug a portion of the alkaloids to which its value as a medicine is chiefly due. Assuming that these alkaloids are the most desirable proximate principles present, that solvent is best suited to its use which removes with the oil the smallest proportion of the contained alkaloids.

Of the many solvents that could be put to this use, five are available in sufficient supply and cheapness, viz.: benzin, benzol, carbon disulphide, chloroform, and ether. In the following estimations, the usual commercial articles were used, ether being stronger ether of about 96 per cent, and nearly free from water.

25.00 Gm. of nux vomica, in fine powder, and dried at 100° C., packed in column, 75 Mm. high and 25 Mm. in diameter, was extracted by percolation with one of the above solvents until 1,000 C.c. of percolate had passed. The residue left on evaporating the percolate was brought to a constant weight at 100° C. and weighed; then dissolved in the original solvent and the alkaloids extracted by shaking the solution with four successive portions, 20 C.c. each, of sulphuric acid of 2 per cent, the fourth portion removing no alkaloids or only traces. The first three washings having been united, were washed repeatedly with chloroform, the chloroform washings shaken successively with the fourth portion of diluted acid, which was then added to the stronger solution. From this mixture the alkaloids were thrown out by soda and taken up by chloroform. The chloroform solution, drawn off into a second separator and well shaken with an equal volume of water, rendered faintly alkaline with ammonia, was, when perfectly clear, run into a tared flask. The alkaline liquids were extracted with two portions of chloroform, washed and separated as before. The united solutions, perfectly clear and colorless, were distilled to a small volume, the residue gotten in a thin film on the flask, dried to a constant weight and weighed. Weighings to 0.0001.

As these extractions were made by percolation, and as the temperature, speed of percolation, and time of alternate maceration and percolation could not be uniform in each, a second series of extractions was made, using 25 Gm. of nux vomica and 125 C.c. of each solvent, these being the same as in the first series, except that the ether now used was *absolute ether* and chloroform *purified chloroform*. After maceration during ten days, with frequent shaking, the fluid portion of each mixture was filtered in a small and well-covered funnel. In 15 C.c. of the clear filtrate the total solids were estimated, and in 70 C.c. the total alkaloids. Weighings to 0.0001.

From these figures are calculated the quantities for 125 C.c. (= 25 Gm. of drug) without allowance for increase in volume produced by dissolved substances.

1. *Table showing percentage of Alkaloid and Total Solids extracted from Nux Vomica by different solids.*

		Benzin.	Benzol.	Carb'n Disulph	Chloro-form.	Ether.
25 Gm. powdered nux vomica extracted by percolation with each solvent to 1,000 C.c. percolate.	Alkaloid.	0.060	0.090	0.085	0.129	0.092
	Solids....	1.125	1.255	1.214	1.366	1.244
	Alkaloid in Solids	5.33%	7.17%	7.00%	9.44%	7.40%
25 Gm. powdered nux vomica extracted by maceration with 125 C.c. of each solvent.	Alkaloid.	0.0591	0.0885	0.0825	0.1382	0.0715
	Solids....	1.065	1.110	1.196	1.287	1.130
	Alkaloid in Solids	5.55%	8.0%	7.0%	10.74%	6.33%

From these results it is concluded that benzin is the best solvent for removing the oil from nux vomica.

Operating on this fact, one part of the drug, in fine powder, was extracted by benzin, by alternating maceration and percolation until ten parts of fluid had been ob-

tained. After drying, the prepared powder was exhausted with a mixture of 8 parts of alcohol and 1 part water. After recovering the alcohol from the percolate, the residue separated, on cooling, in form of a solid cake of fat, which was readily removed, only a small visible quantity escaping. The residual extract easily yielded a fine powder, which, however, was not permanent, cohering in time, owing to the presence of a part of the fat.

It is, therefore, impracticable to exhaust the *seed* with any solvent in moderate quantities, as, for the present purpose, the extraction must be very nearly complete. A preferable plan is to remove the fat from the extract while still in the thick syrupy condition. By a process modified on this principle, an extract was prepared from 50 oz. of powdered nux vomica. The yield was 4.25 oz., and, as the extraction was very thorough, one part represents about twelve parts of the drug. It contains 22.8 per cent total alkaloids, of which 40.4 per cent is strychnine, as estimated by the alkalimetric method of Schweissinger. As it is still in fine powder, though unreduced, after four months, and during extremes of weather, the following plan in detail, by which it was prepared, would appear worthy of confidence.

Prepare the extract from 100 parts of nux vomica, according to officinal instructions. To the residue of the distillation, contained in an evaporating dish or other suitable vessel, and of a thick, syrupy consistence, add, before the fat solidifies, 25 parts of commercial benzin, stir well a few minutes, and allow to stand, closely covered, for 12 hours. Pour off the upper benzin layer as completely as possible, together with a part of the fat that has resisted solution. To the contents of the dish add 10 parts of benzin, mix thoroughly and pour off the solution as before; and repeat the washing until the fat is entirely removed, about five repetitions being necessary. Evaporate the residue, on a water bath, to a stiff extract, cool, reduce to a coarse powder, and dry to a constant weight at 50° C. To the residue add 40 per cent of its weight of sugar of milk and reduce the mixture to a uniform and very fine powder.

If made from selected, light-colored nux vomica, this powdered extract will seldom assay less than 16 per cent of total alkaloids, and will be very nearly the same strength as the officinal oil-containing extract, when of firm consistence.

As the powdered extract has largely displaced the mass extract in practical dispensing, it is proper, at this place, to turn to the commercial powdered extract of nux vomica and examine what is actually used in medicine, as very few dispensers are independent of this source of supply.

Thirty-four packages, from eighteen makers, collected in the principal inland cities, and in New York City and San Francisco, were examined for total alkaloids, and percentage of fat, and alcohol-soluble extract, according to the following general method:

2.5 Gm. of the powder were extracted with 50 C.c. alcohol, at 50° to 60° C. for two hours, frequently shaking, cooled, and after twelve hours the solution poured off through a tared filter; the insoluble portion was treated as before, using 40 C.c. and 25 C.c. alcohol in succession; the residue was then washed into the filter, and the filter and contents well washed with alcohol until the filtrate passed quite colorless. Filter and contents, dried and weighed, gave alcoholic extract by difference.

To the filtrate, after distilling off the alcohol, were added 10 C.c. dilute sulphuric acid, and the remaining alcohol was removed, at 50° to 60° C., on a water-bath. The acid solution, measuring about 30 C.c., was washed, in a separator, with three successive volumes of chloroform, each washing being in turn washed by 25 C.c. of a 2-per-cent sulphuric acid. The chloroform solutions, entirely clear, yielded the fat on evaporation. Of this residue, about 1 per cent is a hard, red, brittle resin, the remainder fat, and containing but traces of the alkaloids.

From the united acid solutions, the alkaloids were precipitated by soda and taken out by 50 C.c. of chloroform, followed by another portion of 30 C.c. chloroform, further washing not extracting a weighable quantity. The chloroform solutions, washed, in succession, with 25 C.c. of 5-per-cent soda solution, when united, were extracted by sulphuric acid of 2 per cent, using 30, 20, and 20 C.c., the last collecting not more than traces of alkaloids. These acid solutions, after repeated washing with chloroform, were united, made alkaline, and extracted with chloroform, using 30, 25, and 15 C.c. The chloroform solutions, washed in turn with 30 C.c. of water, rendered slightly alkaline with ammonia, and *entirely* clear, were evaporated, the residue dried to a constant weight at 100° C., and weighed. Weighings were carried to 0.0001.

These residues were almost colorless, or of a pale amber color, soluble in dilute acids, giving colorless or usually light straw-yellow solutions, and were in some few instances partially crystallized.

As nothing is known concerning the preparation of these extracts, little comment can be made upon them. Those appearing to be best made, as shown by light color and the proportion soluble in alcohol, contained, in the soluble part, 20 to 24 per cent of total alkaloids, the larger number being between 22 and 23 per cent. Six samples of the drug, five commercial powders of good appearance, and one rasped, gave oil-free extracts containing between 22.5 and 23 per cent. It would seem, from this, that a selected drug will yield this extract of very constant strength, so that a standard, once set up, could easily be maintained. From preceding data, that standard should be near 16.5 per cent total alkaloids. Accepting this as an average value, it is evident that much of the supply is far below what it should be according to label, although a number of makers do not prepare the powdered to equal the pilular extract.

[The author here supplies a table showing the results of assays of commercial powdered Extract of Nux Vomica, obtained from seventeen different makers from all parts of the United Sates. The total alkaloids vary from 2.20 to 18.96 per cent.—Ed. Am. Dr.]

Since wood alcohol has been produced of great purity, its use as a solvent for preparing solid extracts, and for similar purposes, has been proposed, on account of its much lower first cost. While this advantage may be apparent only, since the loss is much greater in working with a solvent so much more volatile than alcohol, its superior value, compared with ordinary alcohol, for preparing this particular extract has been determined, leaving the question of its greater cheapness to those who may wish to use it.

From a commercial methyl alcohol of fair quality, and free from ethyl alcohol, was obtained a distillate containing 94 per cent methyl alcohol. From this neutral liquid, and from a neutral ethyl alcohol of 88 per cent, were prepared dilutions containing of each alcohol, by weight, 90, 80, 70, 60, and 50 per cent.

To 150 C.c. of each liquid was added 30 Gm. of powdered nux vomica, dried at 100° C., and the mixtures shaken frequently daily during thirty days; then filtered in closely covered funnels. In 5.00 C.c. of each were estimated the solids; and in 30.0 to 50.0 C.c., the total alkaloids. As it is necessary, in view of the equivocal activity of brucine, to know the percentage of strychnine in the alkaloid residues, these also, in part, have been determined, using the alkalimetric method of Schweissinger.

Preparatory to this part of the work, estimations of brucine and strychnine, separately and together, were made.

It appears necessary, at this place, to make some corrections relating to this process, as its details have been widely published and may mislead others as this experimenter has been misled (Lyons, "Pharm. Assaying," pp. 116 and 117, and others).

"One C.c. of a decinormal solution of hydrochloric acid neutralizes 0.00394 brucine, and 0.00334 strychnine. Dissolve the mixed alkaloids in a slight excess of decinormal acid, and titrate back to neutrality with decinormal alkali. Divide the weight of the alkaloids in milligrammes by the number of C.c. of acid required, and subtract the quotient from 3.94; divide the remainder by 6, and move the decimal point three places to the right to obtain percentage of strychnine."

Strength of Volumetric Acid and Alkali.

As a normal solution contains in one liter the molecular weight of the hydrogen equivalent of the active reagent in grammes (Sutton), and as the strychnine molecule (mol. wt. 334) is univalent, a normal solution of strychnine contains, in 1,000 C.c., 334.0 Gm., and 1 C.c. contains 0.334; and 1 C.c. of a decinormal solution contains 0.0334, not 0.00334, as often stated, the latter figure applying to a centinormal solution. Centinormal solutions, acid and alkali, are much more convenient to use, and such were employed by the inventor of the method (Am. Druggist, 1885, p. 230).

Calculation of Percentage of Strychnine.

Taken 0.334 strychnine,
and 0.394 brucine, or total alkaloid, 0.728.

Then, as 1 C.c. of *centinormal acid* saturates 0.00334 strychnine, or 0.00394 brucine, the mixture requires 200 C.c.

$728 \div 200 = 3.64$; $3.94 - 3.64 = 0.30$; $0.30 \div 6 = 0.05$, = 50 per cent of strychnine, according to the quoted rule. But $\frac{334}{728} = 45.88$ per cent actually present.

Conversely, if 50 per cent strychnine were present, we would have $0.728 \times 0.50 = 0.364$ strychnine,

and if 50 per cent brucine, we would have 0.364 brucine: then, as 0.00334 strychnine require 1 C.c. of centinormal acid, and 0.00394 brucine 1 C.c. of centinormal acid, $0.364 \div 0.00334 = 108.98$ C.c. is the amount required by strychnine,

and $0.364 \div 0.00394 = 92.38$ C.c. is the amount required by brucine, or for the mixture 201.36 C.c. But 200 C.c. were required. The rule is not true to itself, and is therefore wholly untrustworthy.

From an algebraic solution, the following arithmetical rule may be deduced:

Multiply the number of C.c. of centinormal acid required by 3.34, and subtract the result from the weight of total alkaloids in milligrammes, multiply the remainder by 394, and divide by 60 to obtain weight of brucine. Find weight of strychnine by difference.

Example, Second of Following Tables.

In the final calculation, the experimental error is mul-

tiplied by 6.566 ($\frac{3.3.4}{6.6}$), and the method of estimation is objectionable in this respect. Thus,

Taken 219.33 milligrammes of mixed alkaloids.¶

If all of it were brucine, it would require 55.65 C.c. $\frac{N}{5}$ acid. If all of it were strychnine, it would require 65.65 C.C. $\frac{N}{100}$ acid, a difference of 10.00 C.c. In finding the saturating power of the mixture, each 0.1 C.c. required beyond 55.65 C.c. indicates 1.0 per cent of strychnine. As the error, from all causes, can seldom be less than 0.1 C.c., the method will show, when at least 200 milligrammes is operated on, the percentage of strychnine within 1 per cent of the total quantity present. But residues are often much less than that amount, as little as 50 to 75 milligrammes, and then the error may reach as much as three or four per cent of the entire quantity of strychnine.

Both acid and alkali used in these estimations were carefully prepared, the acid standardized by sodium carbonate, the adjustment being true, as found by three trials, to one part in not less than 1,157, and alkali made exactly equal to the acid, volume for volume.

In the following table, the sixth column shows the percentage of strychnine as obtained from the volume of acid used (column 4), by calculation, according to the quoted rule, and the seventh the percentage according to the method of calculation here proposed. It is apparent how very slight errors in finding the volume needed for saturation will cause the percentage of strychnine to diverge widely from what is really present.

Taken.				Found.			
	Weight.	C. c. $\frac{N}{100}$ Acid required.	Per cent, Strychnine.	C. c. $\frac{N}{100}$ Acid used.	Weight.	Per cent.	Strychnine.
Brucine.....	0.1834	.....	.....	.....	0.1878	.....	.....
Strychnine.....	0.1263	83.55	40.26	83.35	0.1192	42.78	38.77
Brucine.....	0.1364	.....	.....	.....	0.1358	.....	.....
Strychnine.....	0.0936	62.64	40.70	62.67	0.0942	45.00	40.95
Brucine.....	0.2070	.....	.....	.....	0.2094	.....	.....
Strychnine.....	0.1600	100.44	43.6	100.33	0.1576	47.00	42.91
Brucine.....	0.0987	.....	.....	.....	0.0994	.....	.....
Strychnine.....	0.1140	59.18	53.6	59.15	0.1133	57.33	53.27

[The author also appends a table showing the amount of centinormal acid required to saturate the two alkaloids, and another, showing the relative extracting powers of ethylic and methylic alcohols, which we omit, as the general deductions are given elsewhere in the paper.—Ed. Am. Drugg.]

As the strength of ethyl alcohol decreases, that of the extractive increases regularly, except in that from 60 per cent alcohol. This lower value may be due to an unnoticed accident, as that from 50 per cent was proven correct by duplicate assay. With the methyl alcohol extracts, the strength is highest at 70 per cent, and decreases with following percentages. Hence its solvent powers differ greatly from those of ethly alcohol.

If, now, the fat removed by chloroform be subtracted from total solids, and the values of the oil-free extracts be calculated, the differences are greatly increased, as methyl alcohol dissolves very much less of the fat than does ethyl alcohol. In round numbers they compare as follows.

Ethyl, 90 p.c., 26.6%; 80, 24.6%; 70, 23.3%; 60, 20.7%; 50, 19%.

Methyl, 90 p.c., 20.6%; 80, 21.6%; 70, 21.8%; 60, 19.8%; 50 17.7%.

Next, consider the proportion of strychnine in the alkaloid residues. Only three have been determined, but as they include extremes in alcoholic strength, they are quite sufficient. The mixed alkaloids from 90 and 50 per cent menstrua were colorless, those from 70 per cent, very pale amber colored, although entirely soluble in the volumetric acid. The data are given in full in the following table, to show the accuracy of the method as applied under ordinary conditions, and the values of each mixture as found by the rule for calculation here proposed.

Table showing percentage of Strychnine in extracted alkaloids.

Source.		Weight.	C.c. $\frac{N}{10}$ Acid.	Weight Strychnine.	Per cent Strychnine
90%	E	0.0892	24.30	0.036416	40.6
				0.052784	59.2
	M	0.0868	23.65	0.035521	40.9
				0.051279	59.1
70%	E	0.1773	48.15	0.069088	39.0
				0.108212	61.0
	M	0.1763	47.95	0.070137	39.8
				0.106163	60.2
50%	E	0.1353	36.85	0.055042	40.7
				0.080258	59.3
	M	0.1311	35.70	0.053206	40.6
				0.077894	59.4

E=Ethyl Alcohol. M=Methyl Alcohol.

The proportion between the two alkaloids is the same as extracted by the two solvents.

From the results the conclusion is reached that methyl alcohol is greatly inferior to ethyl alcohol of corresponding strength for extracting nux vomica. Did the value of the extractive matter depend *solely* on the contained alkaloids, it would be a useful alternative menstruum, provided the product obtained by it be adjusted to an uniform strength. But, as the fixed oil and other proximate principles have no small influence over the action of the more active alkaloids, as these substances are taken from the drug in such varying proportions by the two solvents, and as the recognized medicinal action of the extract has been based on that obtained by ethyl alcohol, the use of methyl alcohol for preparing this extract must be condemned.

Cincinnati, June 10th, 1888.

The Estimation of Oxalic Acid in Plants.

Berthelot and André have recently shown that the precipitates which are obtained in vegetable extracts acidulated with acetic acid, by means of calciun salts, are *not* necessarily *oxalate of calcium*, but may contain tartrate, uvate, citrate, and sulphate of calcium, or may not contain any oxalate at all. Besides, they may contain coagulated nitrogenous substances. Hence these precipitates should never be used directly for the estimation of oxalic acid.

In order to separate the oxalic acid, the authors recommend to proceed as follows: The vegetable extract or solution, either purely aqueous or prepared with addition of hydrochloric acid, and free from any particles of the plant, is raised to boiling, and the liquid then filtered. The filtrate is mixed with excess of ammonia, which causes a precipitate of impure oxalate of calcium, more or less colored, and mixed with flocculent substances. Next an excess of boric acid is added, which causes, if chloride of ammonium is present at the same time [and this should be added, if none is present] the resolution of other calcium salts except the oxalate, or prevents their precipitation. The mixture is now strongly acidulated with acetic acid, whereby carbonates and certain other salts are dissolved, and acetate of calcium is now added. The whole is heated during one hour, but not boiled, the object being to cause the precipitate to settle more compactly. It is then collected on a filter, and washed. But as it is not yet sufficiently pure, it is redissolved in hydrochloric acid, precipitated with ammonia, and the liquid acidulated with acetic acid. If necessary, this process is repeated two or three times.

The oxalate of calcium thus obtained is pure, and may be weighed as such, or as carbonate or sulphate.

The authors, however, prefer to estimate it indirectly, viz., by decomposing it with strong sulphuric acid into carbonic acid and carbonic oxide gases, the former of which is absorbed, while the latter is measured.—After *Zeitsch. f. Anal. Chem.*, 1888, 403.

Improvement in Saccharin.

A great objection to saccharin is its very sparing solubility when pure. The defect is corrected by the addition of an alkaline bicarbonate, but it is often at the expense of the sweetening properties of the chemical, which sometimes acquires almost a bitter taste. Flies, bees, and other insects will not touch saccharin in any shape, but as man, who is not so good a judge of sweets, likes it, let it at least be cooked up and served to his taste. M. P. Mercier recommends the following process. Take of—

Pure Saccharin	10 parts
Distilled Water	5 "
Sodium Bicarbonate	4–5 "
Alcohol (95%)	20 "
Sulphuric Ether	sufficient

The bicarbonate is to be added by small portions to the saccharin mixed with the water, about half an hour being allowed to pass between each addition, and the mixture being stirred occasionally to hasten the combination and the evolution of carbonic acid gas. It is important to cease adding bicarbonate before the saccharin is entirely saturated. The operation requires 10 to 15 hours. Next the alcohol is added to the mixture, with the effect of throwing down most of the soda saccharinate, and holding in solution the excess of saccharin and impurities; and, finally, the magma is thrown on a vacuum filter, where it is washed, first with more alcohol, and lastly with sulphuric ether. On drying in the open air, a white, exceedingly sweet, and soluble crystalline powder is obtained, which possesses all the properties of saccharin. Some of the chemical features of the foregoing process may be briefly alluded to. It will be noticed, for instance, that no heat is employed. The reason is that under the influence of heat soda will readily transform saccharin into salicylic acid. Then the use of bicarbonate instead of carbonate of soda is not indifferent, as the presence of caustic soda, always to be feared in carbonate, will turn the saccharin into a *para*-compound possessing no sweetness. Lastly, the use of alcohol as a precipitating agent renders heat unnecessary, and removes many impurities to be found in the purest commercial saccharin.—*Chem. and Druggist.*

Brazilian Gum Arabic.

AT the instance of the Kew Gardens authorities, the Foreign Office has applied to Mr. E. Kanthack, British consul at Pará in Brazil, for information regarding the origin of the gum which, for some time, has been consigned to England, principally to Liverpool, as a substitute for gum arabic. In answer to this communication the consul states that the gum in question is not a product of his district at all, but is found in considerable quantity in the province of Piauhy, whence it is shipped at the port of Parahyba in transit to Pará, and sent on from there to England. The gum which is thus brought into commerce consists of two different kinds. One is obtained from a tree called "jatuba," and is of a whitish and pale yellowish color, and in appearance like gum arabic. It is said to ooze out from the root or lower portion of the trunk and to dissolve by heat. The other kind is from a tree called "angico," and is of reddish color, oozing out by cutting the bark. This latter gum dissolves in water, and is considered a substitute for gum arabic. The jatuba gum has been identified by the Kew botanists as the product of *Hymenæa Courbaril*, L., known as "locust tree" in the West Indies, and as "simiri" in Guiana. It is a gum resin, resembles animi in its characteristics, and is used as a varnish gum. The angico gum, as was mentioned in *The Chemist and Druggist* some time ago, is derived from the *Acacia Angico*, Mart., and is a soluble gum, which, for certain purposes constitutes an efficient substitute for gum arabic. A supply of leaves and flowers of the tree yielding the gum may shortly be expected from Brazil, and this will probably clear up all doubts as regards the botanical source.—*Chem. and Druggist.*

In a subsequent issue of the same journal the following additional information is given:

Her Majesty's Consul at Pará states that two kinds of "gum" have appeared in the market there, viz., "Jatuba," the resin of *Hymenæa Courbaril*, a varnish gum well known in this country as Brazilian anime or copal, and angico, a reddish gum said to be obtained from *Acacia Angico*, Mart., and to be soluble in water. It is probable that the latter is the source of the Brazilian gum arabic. Certainly, however, it is not the hymenæa resin, which is quite unlike it in appearance, while "angico" is what is commercially known as a "water-gum." During the past week we have had an opportunity of testing the gum in regard to its adaptability for pharmaceutical purposes, and also of comparing it with a sample of gum imported as "gum angico," for which we are indebted to Dr. Charles Symes, of Liverpool. Our sample is in large tears, some of them weighing as much as 400 to 800 grains, with smooth or wrinkled surface, translucent, and of a dark amber color. The gum powders with difficulty, being not quite dry, and dissolves entirely in water, 1 part of the gum and 2 of water forming a mucilage as thick as the Pharmacopœial mucilage of acacia. It is not, however, so adhesive as acacia, but its ready solubility and moderate viscosity should make it a welcome addition to the confectioner's stock of acacia substitutes. Dr. Symes's specimen is quite different in appearance and property from our own sample. It is of a dark red color, and is only partially soluble in water, swelling up and forming a thick magma with twice its weight of water, In his "Notes on Brazilian Drugs," communicated to the Southampton meeting of the Pharmaceutical Conference, Dr. Symes said that 'in the Formulario ou Guia Medica' of Chernoviz, it is mentioned as the product of *Acacia Angico*, and is said to be good for chest complaints; the same tree yielding an astringent bark. . . . As regards its medicinal properties, the only remark which accompanied it was similar to that of Chernoviz, "usase nas molestias do peito," "useful in chest complaints." Although this gum differs so markedly in appearance from the Brazilian gum arabic, the mucilage of the latter gives very similar reactions to those which Dr. Symes noted of his gum angico, viz., no reaction with ferric chloride and lead acetates, and precipitates with ammonium oxalate and alcohol, the latter being more abundant with the new gum. It is probable that both gums are the product of allied or similar trees, and it would be important to have this point determined, for the new gum is likely to be a useful one, and if it were to be known commercially as gum angico, it is probable that consignments of the insoluble gum might be made, and so lead to disappointment.

Sulphonal.

THE appearance of sulphonal as a hypnotic has been quickly followed by the publication of a test for its recognition. Dr. Vulpius recommends for this purpose (*Pharm. Centralh.*, May 17th, p. 245) the regeneration of mercaptan—of which the compound is a condensation product—by fusing a decigramme of sulphonal with an equal weight of potassium cyanide, when a thick vapor is at once given off, having the unbearable odor of mercaptan to a high degree. Mr. Ritsert, however, objects to the use of potassium cyanide, and proposes pyrogallic or gallic acid as a non-poisonous substitute (*Pharm. Zeit.*, May 21st, p. 312). Mr. Ritsert heats one or two decigrammes of sulphonal in a dry test tube until, at about 280° C., the water-clear fused mass begins to give off bubbles of gas. From 0.05 to 0.1 gramme of pyrogallic or gallic acid is then added, which causes the clear liquid to become brown and evolve the characteristic mercaptan vapor. As to the probability that sulphonal will take permanent rank as a hypnotic, Mr. T. E. Lovegrove, writing to the *British Medical Journal* (May 26th, p. 1,113), says that his experience with it has been very discouraging. For several hours after the drug had been taken no appreciable effect could be observed in the patients, but during the following day there was extreme drowsiness and considerable cyanosis. He found it to require for solution considerably more than "eighteen to twenty parts of boiling water," and immediately on cooling it crystallized out; neither was it soluble in one hundred parts of water at the ordinary temperature. Mr. Lovegrove considers the best mode of administering sulphonal to mix it with pulv. tragacanthæ and water. According to Dr. Scholvien (*Pharm. Zeit.*, May 30th, p. 320), one part of sulphonal requires for solution 15 parts of boiling water, 500 parts of water at 15° C., 133 parts of ether at 15° C., 2 parts of boiling alcohol, 65 parts of alcohol at 15° C., or 110 parts of 50 per cent alcohol at 15° C. After recrystallization of commercial sulphonal three times from 50 per cent alcohol, absolute alcohol, ether, chloroform, and benzol, the melting point proved to be uniformly at 125.5° C., and Dr. Scholvien thinks, therefore, that this character may be taken as an indication of a pure product. Dr. Kast, who introduced sulphonal, reports that he has found an allied disulphone, ethyliden-diethylsulphone, to act as a narcotic in the same doses as sulphonal, and probably in less time, but it appears to produce disturbance of the heart's action. A number of other disulphones have been experimented with, but proved to be inactive or objectionable on account of the symptoms produced.—*Pharm. Journ.*

The Spanish Saffron Trade.

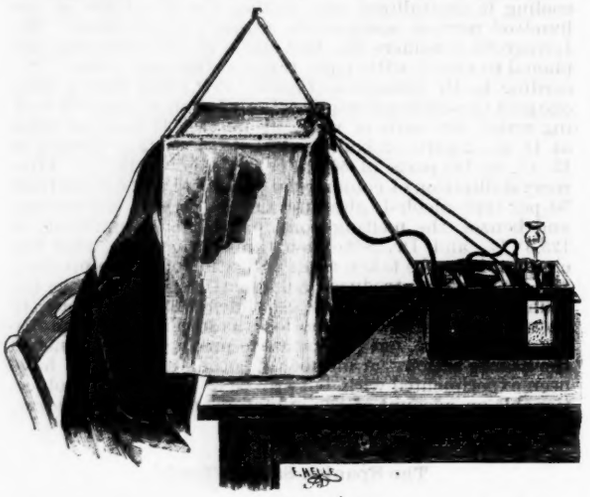
IN the last issue of the *Handels Museum*, Mr. Theodor Mertens, of Valencia, gives some particulars about the Spanish saffron trade. The average yield of the crop in that country amounts to between 180,000 and 225,000, a quantity four-fifths of which is quite sufficient to cover the entire consumption of Spanish saffron, so that in seasons of abundant crop, when, perhaps, 290,000 to 310,000 lbs. are harvested, a heavy stock accumulates, and three successive abundant crops generally cause the farmers to reduce their plantations. The lowest price at which saffron-growing can be made to pay, closely approaches the equivalent of 28s. 6d. per lb. At Pithiviers, in the Gatinais (France), a maximum crop of from 27,000 to 34,000 lbs. was harvested in former years, but since the severe frost which occurred in that district in 1879 the largest crop has not exceeded 11,000 lbs. (in 1887 it was only about 7,800 lbs.), and at present Spanish saffron unquestionably rules the market. The average Italian crop may be placed at 11,000 to 13,500 lbs. per annum, and in Austria saffron-growing only pays if the price is at least 53s. per lb. This Austrian is the best of all, and next to it ranks the Gatinais, the only drawback of which is that it very quickly loses its vivid color. In Spain saffron is divided into five grades, each cultivated in a different district. The centre of the export trade is Valencia, where the saffron is stored by the merchants, who generally advance money on it to the cultivators. These merchants sell it to the local agents of foreign houses, who export the drug in strong wooden cases, with an outer covering of matting, about 160 lbs. weight, and in which the saffron is packed in white paper. For export to distant countries, however, the saffron is generally packed in tins, which are placed in a wooden case. The principal buyers of Spanish saffron are a few firms in southern Germany—Mannheim, Frankfort-o-M., Hanau and Wurzburg, who pick and grade it, remove the yellow threads, leaving only the purely red filaments, or grind it, and redistribute it subsequently to all parts of the world. Pithiviers and Marseilles used to buy large quantities in Spain, but do not now take quantities of any importance. Other countries purchasing direct from Spain are England, North America (California), South America, especially Buenos Ayres, Montevideo, and certain portions on the west coast, British India and Japan. Adulteration is, of course, practised to a very large extent; at Novelda, in the province of Alicante, for instance, all the saffron brought to market is systematically adulterated.

Glass-balls for Refilling Wine-Casks.

WINES which contain less than about 15 per cent of alcohol cannot be kept in casks, unless the latter are kept full, and protected from the air. When a portion of the contents of a cask is withdrawn, the vintner fills it up again from reserved stock, until the particular brand gives out. He then used to, and still does, resort to the practice of putting pebbles into the cask to occupy the volume of the displaced wine. But even with the best of care, some ferruginous or otherwise impure pebbles are apt to get in, which may injure the flavor of the wine. For this reason, *glass-balls* are now being used by many in place of the pebbles.

THE TECHNIQUE OF HYDROFLUORIC ACID INHALATIONS.

INHALATIONS of hydrofluoric acid gas have been used for some time with reported good success in the treatment of diphtheria and phthisis. Various forms of apparatus have been proposed for the uniform administration of the gas. Mr. Bardet, of Paris, has utilized the principle underlying the method of Dr. Bergeron for administering hydrosulphuric acid gas per rectum, and has constructed an apparatus which delivers a current of carbonic acid gas charged with the proper proportion of hydrofluoric acid.



Bardet's apparatus.

The apparatus consists of three pieces (see cut), a generator of carbonic acid, a pressure regulator, and a respiratory apparatus proper. The generator consists of a liter bottle with wide mouth, the stopper of which bears a globe-funnel and a delivery tube. The regulator consists of a small rubber bag connected with the delivery tube, and forming part of the conduit. Upon the bag rests a small, movable, and hinged trap. When the pressure of gas becomes too great, the extended bag raises the free end of the trap, and this compresses the delivery tube, thus diminishing the amount of gas generated in the flask. When the pressure diminishes, the trap is gradually released again. Another portion of the apparatus consists of a rubber bottle containing the hydrofluoric acid solution. The current of carbonic acid gas is made to pass through the acid, and the mixed vapors finally pass through a wide rubber tube into a sort of tent arranged as shown in the cut, into which the patient introduces his head. [It seems to us that the current of carbonic acid gas, mentioned in the original, should be replaced by a current of *air*.—ED. AM. DR.]

For use, the generator is charged with a mixture of 4 parts of tartaric acid and 5 parts of bicarbonate of sodium, and a little water is gradually added through the funnel, the lower orifice of which is best drawn out fine. The reaction is sufficiently regulated by the trap over the rubber bag. The hydrofluoric acid may be used in varying strengths, 15, 20, or 30 parts of the commercial acid, diluted with water to 100. Two sittings a day are recommended, each of three-quarters of an hour.

Another form of apparatus is that of Dr. Bergeron. This consists of two gasometers of the construction shown in the cut. When either one of the inner cylinders is pushed down into the other, the volume of air contained within it is forced through the tube *T* to the common outlet *R*, and finally passes through *D*, and issues at the ceiling of a small room in which the patient is made to sit. The bottle *D* contains a titrated solution of hydrofluoric acid. The pushing down of one of the cylinders of the apparatus naturally raises the other one, and during its ascent this becomes filled with air, which enters through the tube *U*, the orifice of which is provided with a valve which only opens inward. Two other similar valves will be found in the connecting tubes between *U* and *R* (see small cut on top). As the capacity of the air-space of the cylinders is known, it is easy to administer an exact dose of the vapor of hydrofluoric acid.

Bergeron does not approve the use of a dilute solution of the acid, and the passage of the air through it, as it has happened that particles of the liquid have been carried forward mechanically. He prefers to employ a strong acid and to pass the current of air *over*, not through it.

Seiler uses three solutions of different strength, one containing 33⅓% of hydrofluoric acid, another containing 50%, and another containing 66⅔%. A separate chamber or tent is used for each of these vapors. By the way, any glass, in windows or elsewhere, in these chambers or tents must be coated with a thin varnish to prevent the vapors coming in contact with the glass, which would thereby become dulled.

Petit and Filleau do not use an inhaling apparatus, but simply place the bottle containing the acid in the chamber, in which the patient has taken a seat, the flask being about four feet from the floor. Yet this method is not approved by Bergeron.

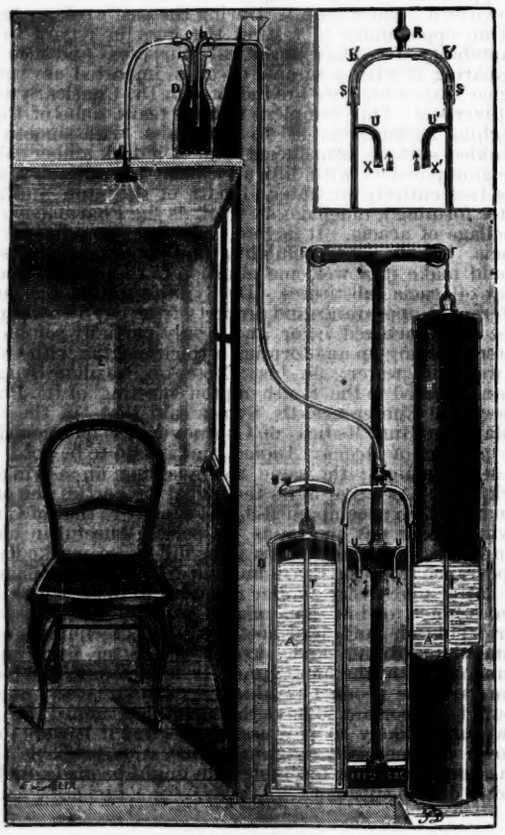
A very simple apparatus is that of Dupont, but the dosage of gas is rather uncertain, and it is inhaled through a cap placed over the mouth. Nevertheless, as the current of air is made to pass, not through a liquid, but through a wad of cotton, contained inside of the bottle, and moistened with the strong acid, no serious results need be feared if care be taken in administering the gas. Dupont's apparatus is shown in the accompanying illustration (see next page). It will be seen that the current of air is blown, by means of bellows, across a sort of wick, which is a part of the wad of cotton contained in the bottle. The liquid retained by the wad is gradually drawn up by capillary attraction.—After *Bull. Gén. de Thérap.*

Volumetric Determination of Potassium and Sodium.

POTASSIUM may be separated from sodium by acid tartrate. A solution of pure acid ammonium tartrate, saturated at about 90° C., diluted with an equal volume of water, is the reagent. When used, the flask containing the reagent is heated till the crystalline tartrate is redissolved.

The salts are (or should be got) in the form of chlorides. Two solutions of potassium and sodium chlorides were prepared to do away with the frequent weighing out of the salts: 20 C.c. of the solution, containing about 0.2 Gm., is measured into a 100 C.c. measuring flask; 5 C.c. of ammonium tartrate for every 0.1 Gm. added; the solution is allowed to cool, and methylated alcohol is added in small portions, shaking after every addition until up to the mark. Filtered, after about three hours, into a burette, 10 C.c. is evaporated, and ignited gently till the charred mass is white. Evaporate with a solution of ammonium chloride, ignite, and titrate the sodium chloride with a solution of silver nitrate, 1 C.c. = 0.001 Cl. The sodium is found directly, and the potassium indirectly. [The author gives the results of several assays, all but one of which are satisfactory.]

The precipitations were usually done in the evenings, and allowed to stand over night. Three hours were, however, found sufficient from a trial of the mixed chlorides. The filtrate from the precipitate of the solution of potassium chloride gave no fixed residue. In an early experiment, the adding of spirit at once, in quantity, lowered the quantity of sodium chloride by 0.004.



Bergeron's apparatus.

I was led to these experiments by trying to find a method of separation based on the insolubility, discovered by Wurtz, of potassium alum in aluminium sulphate. The potassium of the alum might be determined by precipitating with barium chloride, and then with ammonium carbonate, and titrating the potassium chloride formed, but the present process is simpler.—J. TSAWOO WHITE in *Chem. News.*

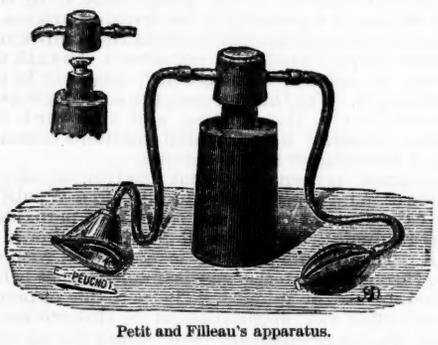
On the Chemical Nature of Peptone.

An important contribution to our knowledge of the nature of peptone has been furnished by R. Palm of the pharmacological institute at Dorpat. From an article by this author published in the *Zeitschrift f. anal. Chemie* (1888, 350) we take the following.

It was Lehman who first introduced the term *peptone* in scientific nomenclature. The albuminoids, when digested in the stomach, lose the faculty of being coagulated, and of being precipitated by certain reagents, and the resulting clear solution finally has a different behavior from that of ordinary pure albumen.

On treating albumin peptones with alcohol a white, light-flocculent precipitate is obtained which, when dried on a water-bath, forms a yellowish, fissured, very hygroscopic mass, easily soluble in water to a colorless liquid. From this, the peptone is not precipitated by alcohol, heat, alkalies, acids, or neutral salts. Only solution of mercuric oxide, acetate of lead or tannic acid cause precipitates. In physiological chemistry, there are distinguished milk-, casein-, albumin-, serum-, gelatin-, and fibrin-peptones.

A qualitative test for peptone is the biuret reaction, which is given by the author in a modified manner as follows: Mix the peptone solution first with soda, and then with enough hydrochloric acid, until the precipitate first formed has been again dissolved. Next add a trace of sulphate of copper, and lastly, an excess of soda, which will cause the formation of a precipitate having at first a greenish-blue color, which changes to rose-red, by agitation, the last tint remaining even when the liquid is heated to boiling. Albumin bodies, under similar conditions, furnish solutions of a violet tint. Elementary analysis has proven that peptones have the same ultimate, chemical composition as albumins.



Petit and Filleau's apparatus.

The author next quotes the views of all chemists who have advanced theories as to the nature of peptones. But it is evident that none of the explanations so far advanced are sufficient to furnish the correct clue.

Dr. Palm (the author) finds, as the result of his examination, that peptone (milk-peptone) *is a solution of albumen* in lactic acid. When lactic acid acts upon egg-, milk-, or serum-albumen, or upon casein, *peptone* is obtained as a result, and the same is the case when lactic acid acts upon gelatin, fibrin or chondrin. Hence *peptone* should be interpreted as a *solution of protein in lactic acid.*

A peptone of definite composition (that is, proportions) may be obtained by mixing an alcoholic solution of peptone with a sufficient quantity of ether, whereby a mixture of protein and lactic acid is separated, in stoechiometric proportion, in form of an oily mass. On the other hand, the author has succeeded in separating genuine albumen from peptone, by neutralizing the solution of the latter with ammonia (that is, by neutralizing the lactic acid), and afterwards treating the mixture with alcohol of 95%, whereby all the albumin was separated. The same result was obtained by employing alcohol (95%) acidulated with sulphuric acid. In this case, the albumin forms a compound with the sulphuric acid, which is insoluble in lactic acid. In this method, however, an excess of acid must be avoided, since the precipitate would be redissolved. The author found that after he had completely neutralized a solution of peptone with ammonia it yielded all reactions for albumin in the same manner as an original solution of pure albumin. And if the neutralized peptone solution is heated, the albumin coagulates precisely like the natural substance.

The author used milk-peptone for most of his experiments, and this contains only lactic acid. Such peptones, however, which are formed in the stomach during digestion may contain both hydrochloric and lactic acids. The reason why no albumin is coagulated when a solution of peptone is heated, is this, that it contains free lactic acid. The latter namely, like acetic acid, dissolves albumin, even if it had previously been coagulated. Besides, the presence of lactic acid in the peptones prevents the albumin from being coagulated by alcohol, or by alkalies or neutral salts. All precipitates which are produced by these agents in normal solution of albumin are easily dissolved by lactic acid, excepting the precipitate produced by mercuric oxide or tannic acid.

It remains to examine into the reason why peptones show the same elementary composition as the albumin from which they are derived. The answer is simple, viz.: "because *the method used for isolating the peptone does not yield peptone* (that is albumin or protein and lactic acid), but only true albumin." It is, however, known from many elementary analyses, that peptones showed a smaller percentage of carbon and nitrogen than the original albumin. In these cases both albumin and lactic acid had been separated and analyzed as peptones.

"Peptone," therefore, should be understood to be a solution of protein in acids, among them sulphuric and acetic, and probably other acids.

To distinguish peptone from albumin, the author places reliance upon potassium xanthogenate or xanthate (produced by saturating boiling alcohol of 0.800 sp. gr. with potassa, and then dropping in disulphide of carbon until this ceases to be dissolved, or until the liquid ceases to be alkaline. On cooling the salt crystallizes; the crystals must be quickly removed, pressed between blotting paper and dried *in* vacuo). Xanthate of potassium yields a precipitate with a neutral solution of normal albumin only after addition of acids; but with peptones it yields a precipitate at once, as these already contain acids.—After *Zeitsch. f. anal. Chem.*, 1888, 359.

To Prevent Bumping during Distillation.

To prevent the annoying, and sometimes dangerous occurrence of bumping which many liquids experience during distillation—which is mainly due to a superheating of the layers of liquid situated immediately over the source of heat—A. Reissmann recommends to introduce into the flasks or retorts, spirals of rather thick platinum wire, containing small fragments of pumice. The spirals must be heavy enough to prevent the pumice from floating it. The pumice, thus compelled to sink to the bottom, has the advantage of presenting a large surface to the liquid.

E. Dannenberg recommends asbestos for the same purpose, and thinks it preferable to anything else.

W. Markownikow introduces into the liquid to be distilled several small capillary tubes, 0.3 to 1 Cm. long, and closed by fusion at one end. The presence of these will cause liquids, which are otherwise very refractory, to boil regularly and quietly, even under diminished pressure.—*Zeitsch. f. anal. Chem.*, 1888, 385.

Stray Notes on New Remedies.

Trefusia. This is the name given by an Italian manufacturer, Luigi d'Emilio, of Naples, to a condensed ox-blood, which is said to differ from similar preparations by containing the albumen in a soluble form. The new substance is completely soluble in warm or cold water, is in form of a granular powder and of a reddish-brown color, not hygroscopic and dissolving in water to a blood-red liquid. If it is to be administered to children, it is recommended to be given in chocolate, and in the case of adults, to be given with malt or spirituous liquors. The dose for children is stated to be ½ to 1 Gm., or 1 to 3 Gm. per day. For adults, 3 to 10 Gm.

Iodine Trichloride (ICl_3). This is an orange-yellow, crystalline powder, having an astringent, acid taste, a penetrating odor, and is very volatile. Its vapor is very pungent and irritating. It is easily soluble in water, forming a brown liquid which undergoes but little decomposition if kept in amber colored bottles. Prof. Langenbeck, of Berlin, has used it in surgical operations, in aqueous solution of 1 in 1,000 or 1 in 1,500, which were sufficiently strong to destroy all kinds of bacteria, rendering it nearly equal to corrosive sublimate. Its pungent odor, and property of staining the skin is not considered to be a drawback, as it is not poisonous in the sense in which corrosive sublimate may be under certain circumstances. Iodine trichloride has also been used internally in dyspepsia, when due to bacteria [?], in doses of 1 fl. drachm of a 0.1 per cent solution. Also in skin diseases as a lotion, and as an injection in gonorrhœa.

Lipanin. We have already given an account of this new substitute for cod-liver oil, and need only add here that the substance, as sold, is stated to be prepared from pure olive oil by partial saponification, the unsaponified portion of the oil, and the liberated oleic acid being mixed to form lipanin. It is an oily liquid, resembling olive oil and contains 6¼ per cent of free oleic acid. It forms emulsions with great facility. 5 C.c. of lipanin mixed with 5 C.c. of water and 3 drops of solution of soda (10%) yield a permanent and perfectly white emulsion.

Phenolphtalein Solution.—A. Gawalowski has made the observation that phenolphtalein usually (or always) has a very faint acid reaction. This is shown by the fact that if it is dissolved in alcohol absolutely free from any acid trace, it will bear the addition of several drops of normal potassa solution (from 0.2 to to 0.6 C.c. per gramme of phenolphtalein) without turning red. Only when the faint acid trace has been completely neutralized, will the red color make its appearance upon adding more of the alkali. —From *Zeitsch. f. anal. Chem.*

A New Method of Making Mercurial Ointment.

L. JACQUEMAIRE proposes (in *Journ. de Pharm.*, May 15*th*, 1888) a new method of extinguishing mercury and preparing mercurial ointment. It is based on the production of a small quantity of amalgam caused by the introduction of a minute quantity of metallic potassium, about 1 part of this being sufficient for every 1,000 parts of mercury. The amount of the former is so small that it may be entirely disregarded, and, moreover, it is probably entirely saponified by the subsequent mixture with the fatty body.

The author of course applies the new method to the particular formula prescribed by the Codex for mercurial ointment. But it would be equally applicable to other similar ones. In general, his process is as follows:

Place the requisite amount of mercury into a porcelain capsule, and warm gently [which should be done under a hood.—ED. AM. DR.] in order to dissipate any adhering moisture. Then add the potassium in small fragments. The combination takes place under slight decrepitations. Stir well with a glass rod, so as to cause the amalgam to be dissolved and uniformly distributed throughout the rest of the mercury. The mass is now poured into the fatty base, which has previously been thoroughly beaten to a homogeneous mixture. If any constituent of this is solid at ordinary temperatures, it must, of course, be previously combined with the remainder so that the only operation yet to be performed is the admixture of the mercury. A rapid and energetic trituration will cause the mercury to be immediately divided and in ten minutes to be completely extinguished.

Lanolin Preparations.

1. *Lanolinum Boricum.*

Borated Lanolin.

Boric Acid, in very fine powder	10 parts
Benzoinated Suet	30 "
Lanolin	60 "

Melt the Suet, add the Lanolin, and then incorporate the Boric Acid. Pour the mass into moulds, so as to obtain it in form of thick cylinders. Dispense them in metallic boxes with movable bottom.

2. *Lanolinum Carbolatum.*

Carbolized Lanolin.

Carbolic Acid	5 parts
Benzoinated Suet	20 "
Yellow Wax	20 "
Lanolin	55 "

Melt the Suet and Wax, add the Lanolin, and lastly the Carbolic Acid.

Pour out the mass into moulds, so as to obtain it in form of thick cylinders. Dispense them in metallic boxes with movable bottom.

3. *Lanolinum Salicylatum.*

Salicylated Lanolin.

Salicylic Acid	2 parts
Benzoinated Suet	25 "
Yellow Wax	8 "
Lanolin	65 "

Melt the Suet and Wax. Dissolve in the mixture the Salicylic Acid, and lastly incorporate the Lanolin.

Proceed as in the two preceding cases.—DIETERICH in *Ph. Centralh.*

Bolivian Cultivated Cinchona.

SOUTH Americans allowed the planters of the Old World a good start in the cultivation of cinchona before they thought fit to repair the waste and the ravages in their native forests by rearing the bark-yielding trees in a systematic manner. It is perhaps a tribute to Spanish indifference to progress that a commencement in the cultivation of cinchona was first made in Bolivia ten years ago by German planters, one of the most successful being Mr. Otto Richter, of Cochabamba. Plantations exist at Mapire Longa, Yungas, and Mapire, north and east of La Paz, and in those localities over six million plants were first placed in cultivation. For some time the Bolivian cultivated calisaya, sent to our market in quill form, has been a standing feature in the London bark auctions, but quite recently one of the principal cultivators has made a bold attempt to provide us with a cultivated substitute for the so-called Bolivian calisaya, which is a bark much sought after on the Continent, and for which prices are paid in excess of its mere alkaloidal value. A sample of this cultivated flat bark, recently submitted to us by the importers, shows it to have been carefully harvested. It is quite dry and powders readily, leaving little fibrous material. An assay of the bark showed us that it contains 3 per cent of total alkaloids, apercent age considerably under the standard of the British Pharmacopœia, but comparing favorably with the quality of many samples of natural yellow cinchona. Unfortunately the appearance of the bark under notice is somewhat against it. Of course the trees in Mr. Richter's plantation are still young, and do not, therefore, yield such stout bark as the wild cinchonas which provide the ordinary flat bark of commerce. The pieces, in fact, are merely, if they may be so called, flattened quills, one-eighth of an inch in thickness and which in the ordinary process of drying would have curled up into quills, but were artificially prevented from so doing. The color is partly a deep orange, partly streaked, and spotted with rusty brown, which gives the bark a queer look. Druggists, therefore, who merely appreciate appearance shun it; but we understand that on the Continent the bark is beginning to find a ready sale, and it might be worth the while of our own export druggists to devote some attention to this new variety before it gravitates, as too many other drugs are already doing, towards rival markets.—*Chem. and Drugg.*

A simple Method of preparing Oxygen Gas.

DUPONT recommends to use peroxide of hydrogen as a source for preparing oxygen gas, primarily for medicinal purposes, but the method is applicable to any other uses of the gas.

Peroxide of hydrogen is known to be decomposed when it comes in contact with certain pulverulent bodies, one of the most energetic being peroxide of manganese (in the cold). If pure peroxide of hydrogen solution is obtainable in the market—as it is in most large cities—the commercial article may be used. If not, it is easily prepared by any of the methods laid down in the chemical textbooks. For medicinal purposes, and especially for the preparation of oxygen gas, it is best to use a solution of peroxide of hydrogen containing 20 per cent by volume of the pure compound.

An aqueous solution of peroxide of hydrogen may be concentrated either by a very gentle heat, or by freezing. If it is subjected repeatedly to the freezing process, the ice which is formed retains only traces of the compound, while the mother-liquid gradually acquires a strength up to 70 per cent by volume. If necessary, this may be purified by distillation. For this purpose, the solution is first saturated with baryta, then filtered, and afterwards distilled *in vacuo*. Hanriot has prepared solutions containing as much as 400 volumes in this manner.

To generate oxygen gas, about 100 Gm. (3½ oz.) of pure peroxide of manganese is introduced into a Woulff's bottle of the capacity of 1 quart, and solution of peroxide of hydrogen gradually, and in small portions, allowed to flow upon it. The Woulff's bottle is connected with a wash-bottle, through which the gas is made to pass before it is collected for use, or inhaled. The peroxide of manganese does not suffer any decomposition in this process; hence one and the same quantity will suffice for an indefinite period.—After *Rundschau* (Prag).

[Note by Ed. AM. DR.—The process may be made continuous by providing an exit for the exhausted liquid in such a manner that this may be discharged in proportion as fresh liquid enters. If granular peroxide of manganese is used, a small percolator with stop-cock at the orifice may be employed, the fresh peroxide being admitted at the surface of the manganese compound, and losing its excess of oxygen as it descends, finally passing out as water.]

Almadina, "potato-gum," "euphorbia-gum," or, more briefly "E. G." is a resin of African origin which has of late found its way into European drug markets in increasing quantity. It chief use hitherto has been as a substitute for or addition to india-rubber. It is not only cheaper than caoutchouc, but is said to actually improve the latter when added in certain proportions, by diminishing its porosity and imparting greater durability.—*Sci. Amer.*

Anagyris fœtida, the leaves of which are used in Greece and Cyprus as a substitute for senna, is a leguminous plant, having seeds which yield a non-drying oil, two resinoids, a glucoside, and an alkaloid, called by Dr. Reale anagyrine. The formula for the latter is $C_{11}H_{14}NO_2$ [?]. It is bitter, amorphous, very hygroscopic, and forms hygroscopic salts with inorganic and organic acids. The platinum compound is stable. It is best obtained by precipitation with tannin and decomposing the tannate with plumbic hydrate.

German Insect Flowers.—A Berlin pharmacist, Dr. Unger, has been experimenting with powder from the insect flowers raised at the Horticultural Society's grounds near Berlin. He finds that the powdered flowers from *Pyrethrum roseum, Berolinense*, act very satisfactorily, killing the insects experimented upon after forty-five minutes. The powder of *P. caucasicum, Berolinense*, was less active; the insects were in some degree stupefied, but even after having been kept for several hours in the powder under a glass they remained alive. The *P. carneum* powder had no action whatever. Dr. Unger considers the results obtained sufficiently encouraging to warrant the extension of the cultivation of pyrethrum, especially of the *roseum* variety. He recommends, however, the addition of lime to the soil set apart for cultivation.—*Chem. and Drugg.*

NEW YORK STATE PHARMACEUTICAL ASSOCIATION.

THE tenth annual meeting of the New York State Pharmaceutical Association having been called to order in the parlors of the Prospect Park Hotel at Catskill, June 19th, at 10:45 A.M. by the President, Aaron Sager, of Cortland, prayer was offered by the Rev. W. H. Harrison, of Catskill, and the Hon. J. B. Olney, of Catskill, delivered an address of welcome to the Association. He said:

Mr. President, Members of the Association, Ladies and Gentlemen: I must say that it is with a sort of modest terror I appear before you on this occasion. In the first place, because this thing is a little out of my line; but although I am afraid of you, afraid of your nostrums, afraid of your decoctions, I have yet enough courage to say, I bid you and your ladies welcome. We have not any roaring cataract, like that which has immortalized a certain section of the State, with which to greet you, we have no Thousand Islands, but we have all hospitable homes, and we bid you a cordial welcome to them. We have our beautiful scenery, which, although we have lived here many years, still delights us, and we want you to say in relation to us, "All yours is mine, and what is mine is my own."

You have a committee of arrangements, I understand, who have undertaken to do the honors of this occasion, a very able committee, and I understand there were great discussions in that committee. Dubois insisted upon painting the town red. If you will take a walk down town you will see in what way he has done that. Other members of the committee inclined to golden brown, and on another corner you can see it exemplified by Mr. Post. I think, sir, that the town will have to be painted the color which really distinguishes our county from all others in the State, green, if you are content with that, because we generally calculate that we are green in every respect, but we will do the best we can to make it hospitable for you.

You have a programme committee, I understand, which offers to take you up into an exceedingly high mountain and show you all the kingdoms of the world and the glory of them. Do not bow down to this committee and worship them.

I think it is very appropriate that this gathering should be held on this spot. It is a historic spot. There is no right to land, either by possession or title, equal to the right by prescription. I think this the best reason that you should select this spot for this gathering. Just below here was the Indians' burying ground, and this spot itself, I am told (I was not here at the time), is where they had the last big fight between two tribes, and right here they held the medicine dance once a year about this time. So that it is very proper that you should select this locality for the meeting of this Association.

And there is another thing of which that truthful historian, Irving, informs us. Hendrick Hudson once dwelt upon these mountains. We do not know who his family physician was, but, as I am credibly informed, he sent a messenger to Catskill village for the purpose of getting medicine. We do not exactly know who the druggist was who furnished him this medicine, but at any rate we find him half-way up the mountain when he overtakes a certain party. You know the result. Rip Van Winkle was induced to carry it to the top of the mountain, and the result was not only to put Rip Van Winkle to sleep for twenty years, but the whole locality also. I do not know exactly what it was, possibly spiritus frumenti, I am sure it was not aqua pura, but that spell which was cast over the slumbers of Rip Van Winkle, has extended to the whole population, and it is fitting that you druggists should come here and take off this spell which has prevented Catskill from having its electric lights, its street railroads and its real estate boom. This should be the result of your gathering here at this time, and if you leave enough of the prescription by which these things can be accomplished, we shall say "Amen" to your efforts.

The President called upon Dr. R. G. Eccles, of Brooklyn, to respond in behalf of the Association. He said:

Honorable sir, and friends of Catskill village and vicinity. We thank you for the reception that you have given us this morning, and as members of the Association feel that we have reached a place where we are really and in soul made welcome. You told us of the colors with which the town had been painted, and that people say the true color of the region is green. To my liking, there is no color so grand as green. It is the one color of all others that rejoices the soul. If red were as profuse as green, our eyesight would fail us, and we would not have half the appreciation of the universe that we have. There is no place where man resides, where beauty cannot be found, but this one above all others is one that is really favored by the Supreme Power that has formed the universe. The region has a reputation that is broad. Even that story that he told us about poor Rip Van Winkle being asleep has itself tended to make the region known throughout the English-speaking world.

We are glad to have come to Catskill, glad to have received such a welcome, glad we have come with such a spell as you declare has been cast by the early apothecary over the region so that it has gone to sleep. I can predict to you that this spell shall be removed, and that you shall yet have your street railroads, your electric lights, and you shall have your city built up. So we thank you for the welcome which you have given us.

The President appointed as Committee on Credentials, W. D. Balliet of Lockport, Wm. Howarth of Utica, and O. C. Weinman of New York.

The names of thirty-six applicants for membership were read by the chairman of the Executive Committee.

The President appointed as Committee on Exhibits, R. E. Phillips of Fulton, W. W. Tooker, Sag Harbor, and W. S. Gerity of Elmira.

The President then read his annual address.

LADIES AND GENTLEMEN OF THE NEW YORK STATE PHARMACEUTICAL ASSOCIATION:—Another year has passed since we threaded the beautiful islands of the St. Lawrence on the deck of the *Wanderer*. A decade has nearly passed since our Association was first organized, and I congratulate you to-day that, although we have not filled the full measure of our anticipations, we have accomplished a grand work. Pharmacy as a profession is recognized in the statute books of our State, and this recognition is due to the persistent labors of the N. Y. S. P. A. I congratulate you that so many of the members, who were identified with the early organization of the association, are permitted by a kind Providence to gather with us to-day, and while our hearts are saddened, we cherish the memory of those whose names have a place on our death-roll. We are stronger to-day because of their efforts for the advancement of our interests. Let us emulate their zeal.

It is not my purpose at this time to occupy your attention with a history of the science of pharmacy. The present and future of this Association, as representing the best interests of the pharmacists and druggists of our own and sister States, should be the object of our earnest solicitude.

The past year has been comparatively barren of good results. The treasurer can give you a solution of the difficulty under which we have labored. It is impossible to accomplish much substantial good in these days without a good bank account. The first great problem presented in putting down the late rebellion was a financial one. Fortunately, while the government was bankrupt, the resources of a prosperous and patriotic people were placed at its disposal, and soon the enginery of war was put in motion, and the great rebellion was crushed. Money furnishes the sinews of war. With a depleted treasury it has been impossible to reach our membership with such matter through the mail as was necessary to keep them advised of our affairs. Several documents have come to hand from members of our own and other associations, with the earnest request that we give them circulation among the druggists and pharmacists of our State. It has been impossible for us to comply with even this modest request.

Our committee on county organization has been financially paralyzed, notwithstanding the appropriation of one hundred dollars voted at our last annual meeting, which they have never seen.

Our legislative committee has been poor but honest, not having any funds wherewith to work the lobby. In view of these facts you will see the importance of providing a sound financial policy for the maintenance of the Association. I would advise that a special committee be appointed to formulate a plan whereby the treasury may be replenished, and our Association put upon a sound financial footing, and that such committee report at an early session of our present meeting. While, as has been remarked, little has been accomplished during the year generally, I desire to call attention to the fact that our report of proceedings for the year 1887 was issued with unusual promptness by our faithful and energetic secretary, and as elaborate as in any former year, and it has not been excelled by the proceedings of any other State association.

I have referred incidentally to the subject of county organization. I regret that so little has been accomplished on that line. The evils of unhealthy competition seem to be increasing, and the cutting of prices in many portions of our State threatens to ruin the retail trade. We can think of no adequate remedy except in co-operation for the maintenance of prices. I would, therefore, recommend that you place in the hands of your committee of county organization a sufficient sum to enable them to prosecute their labors. The substantial benefit which accrues to the members of our Association is the measure of its value. Harmonize local interests, suppress jealousy and bitterness, promote a feeling of mutual confidence among dealers, and you will accomplish a purpose which must secure the sympathy and co-operation of the druggists and pharmacists throughout the length and breadth of our land.

Our attention has been called to the Excise Law as it affects the sale of wines and liquors by druggists. A diversity of opinion prevails in reference to the proposed changes in the law. I would suggest several propositions upon which I think we can all unite.

I. That druggists selling wines and liquors only for medicinal and mechanical use should not be required to pay a license fee.

II. That druggists selling indiscriminately should pay the same fee as other liquor dealers.

III. Druggists who sell only for medicinal and mechanical purposes should be required to keep a register of sales with the names of purchasers and the purpose for which required.

IV. A penalty should be imposed upon any person who obtains wines or liquors under false representation.

I would recommend that you instruct our legislative committee to secure the passage of a law embodying such provisions.

The time seems to have arrived when a careful consideration of the Internal Revenue License in this connection is of paramount importance to this Association. All State Associations, which have already met, have placed themselves on record in regard to this question, and as the Empire State is accustomed to lead rather than follow, I feel justified in recommending prompt and decisive action. The subject should be thoroughly discussed, and a special committee created to canvas the State and prepare memorials for presentation to Congress, giving evidence thereby that the pharmacists of the State of New York feel that they have tamely submitted to this odious tax until patience has ceased to be a virtue, and now propose to carry it to the ballot box unless a hearing be accorded on the merits of the case.

In the progress of scientific research many valuable additions are constantly being made to our materia medica from the laboratory and field. The average druggist, in his daily routine, finds little time to follow the literature of the day, and thus fails to keep advised of the new remedies. I would therefore recommend that a committee be appointed on New Remedies, whose duty it shall be to prepare a report on the additions to the materia medica during the year, with samples and specimens to be placed on exhibition at the annual meetings. It is my opinion that this will add much to the interest of our meetings.

I desire to reiterate the recommendation of my immediate predecessor, Mr. Clark Z. Otis, favoring the unification of the pharmacy boards of the State, the adoption of which will do much to overcome the difficulty which now seems to embarrass the several boards in the prosecution of their work. In view of the earnest desire of the Association that every respectable druggist and pharmacist of the State shall become a member, I would advise that a committee on membership, consisting of five, be appointed, who shall have power to appoint one or more associates in each county, to solicit applications for membership.

The recommendations I have suggested will afford ample material, not only for discussion at this meeting, but for work during the year. And now, fellow-members, I trust that our deliberations may be characterized by the same spirit of harmony which has existed in years past, and that the results may conduce to our future prosperity.

Finally, I thank you for the distinguished honor which you conferred in electing me your president. I have thus far endeavored to be faithful in the discharge of my duties, and shall continue during the remainder of my term, so near its close, to preside over your deliberations impartially and in the best interests of our Association.

The chair appointed as a committee to consider the recommendations of the President's address, C. S. Ingraham, of Elmira, W. G. Gregory, of Buffalo, and W. B. Rogers, of Middletown.

The Secretary read his report as follows:

SECRETARY'S REPORT.

To the Officers and Members of the New York State Pharmaceutical Association:

The clerical work of the Secretary has been performed during the year to the best of his ability. The publication of the proceedings having been placed entirely in his hands as a matter of economy, every effort was made to curtail the report without injury to the volume. Unfortunately, a protracted business trip through the West in September necessitated much expedition to complete the book before that date. As a result, many typographical errors occurred from hasty proof-reading, which I regretted, but could not well avoid. The proceedings were issued and mailed within forty days from the meeting, the quickest time in which the proceedings of any State Association have ever been issued, and a gain of twenty-eight days on the best previous record of this Association.

At the close of our last meeting our membership numbered 798. Two names were by accident omitted from the roll, making the exact number 800. During the year five deaths have been reported as follows: Jacob Hermes, Watertown; C. W. Hinsdale, Hudson; A. B. Hollett, M.D., Havana; Stephen Keller, Buffalo; Albert Remey, Port Jervis. Eight resignations have been received. This leaves our net membership at the opening of this meeting, 787.

Acting under the instruction and advice of the Executive Committee and officers of the Association, a special appeal was sent out in the month of May to every druggist in the State, soliciting applications for membership. What result may accrue this meeting will develop.

The clerical expenses of the Secretary for the year have been as follows:

Telegrams	$3 84
Postage, General	28 70
Sundries	5 10
Express charges	4 75
Printing and stationery	15 25
Secretary's expenses attending meeting	23 42
Stenographer's salary and expenses	128 12
One thousand copies Annual Proceedings	366 00
Postage on Proceedings	46 38
Express on Proceedings	12 01
Engrossing certificates	17 50
Five hundred blank certificates	40 00
Twenty-five hundred special appeals	9 75
Postage on same	28 35
Twenty-five hundred announcements	10 50
Secretary's salary to date	300 00
Total	$1,033 67

The Secretary hereby officially acknowledges with the thanks of the Association the receipt of the following exchanges. Proceedings of the American Pharmaceutical Association, National Wholesale Drug Association, and the following State Associations: Connecticut, Florida, Georgia, Illinois, Iowa, Kansas, Massachusetts, Michigan, Minnesota, Missouri, North Dakota, South Dakota, Nebraska, New Hampshire, New Jersey, North Carolina, Ohio, Pennsylvania, Texas, Virginia, Wisconsin.

The following periodicals have been received: *Pharmaceutical Record*, *Pharmaceutical Era*, *Oil Paint and Drug Reporter*, *Druggists' Circular*, *Western Druggist*, *National Druggist*, *American Pharmacist*, *American Drug Clerks' Journal*, and *Medical Bulletin*.

In accordance with instructions from the Association, I procured five hundred blank certificates of membership as soon as possible after the meeting. I was obliged to wait until these were received before issuing certificates to new members, many of whom became quite impatient at the delay which on my part was unavoidable. I feel conscious of the imperfect manner in which I have executed much of the clerical work of the year. I have done the best I could under the pressure of my own business affairs, and crave your indulgence.

Respectfully submitted,

CLAY W. HOLMES,
Secretary.

The Treasurer read the report of the finances of the year, showing balance on hand of $584.

The Secretary read report of the Secretaries' Conference at Cincinnati.

REPORT OF SECRETARIES' CONFERENCE.

While your Secretary was not requested to represent the Association at the meeting of State Secretaries at Cincinnati, he felt it incumbent on him to attend, as it was through his efforts and suggestion that a call was made for such a conference. This report is presented in the hope that it may be received by this Association, and its recommendations considered.

Pursuant to the call issued by your Secretary as chairman of the committee appointed at Providence in 1886, the conference met in the parlors of the Grand Hotel, at Cincinnati, September 5th, 1887, at 9 P.M.; Alabama, Connecticut, Illinois, Iowa, Massachusetts, Minnesota, Missouri, Michigan, New York, and Ohio were represented by their respective secretaries. Your secretary was elected chairman, and Dr. Rosa Upson, of Iowa, secretary.

An interesting discussion developed the fact that such a conference would harmonize the work of all State Associations, if each association would give attention to the points considered, and adopt uniform measures. Among the recommendations of the conference, I present:

I. Would it not be desirable for State Associations to issue transfer papers signed by the president and secretary, to all persons in good standing who remove to other States, which shall admit him as a member of the association of his adopted State without payment of admission fee?

II. Shall papers read at State Associations be contributed to the public press before the proceedings are issued?

III. A plan of reorganization as set forth in the following:

Knowing that in some States a few are made to support the association and carry on legislation, etc., for the benefit of the many, who look on and receive the benefits without sharing in the expense or giving their influence to the association, the question was discussed as to how to make each member bear his proportion of the burden. The plan was proposed to be submitted to each association for their consideration. To reorganize the association so that every registered pharmacist must become a member of the association. This could only be done by concerted action between pharmacy board and association. The association should have a council composed of one druggist from each county, which should meet once a year, expense of each meeting to be paid from registration fees; expense of association should be paid from registration fees, as dues of members should be included in this fee and no other dues be collected, in this way making each man pay his part of the expense of the association, and they shall by virtue of this registration fee be members of the association. In Connecticut, two members of the pharmacy

board must be members of the association. In New York, Illinois, and some other States the board and association are connected. Association might at least ask board to request each applicant for registration to become member of association. Is such a plan feasible? Would this association enter into such a plan if universally adopted? Many other points were discussed which were instructive to your secretary, and all received benefit therefrom.

All those present were authorized by their associations to attend except your own secretary, and I note that some other associations, which have since met, have placed their secretary on the delegation to the A. P. A., and directed him to attend the conference. It is my firm belief that great benefit will result from these annual conferences. Respectfully submitted,

CLAY W. HOLMES.

Dr. Eccles read the report of the Committee on Adulterations.

The Secretary was instructed to send greeting to the Missouri and West Virginia State Associations.

Wednesday at 11 A.M. was fixed as the special order for Dr. Eccles' paper for the ladies.

The Secretary read the names of additional applicants for membership, after which the meeting adjourned.

SECOND SESSION, 3:15 P.M.

Minutes of the first session read and approved.

Fifty-four members were elected upon one ballot cast by the Secretary.

The Committee on Credentials reported the receipt of credentials from the National Druggists' Association, Connecticut Pharmaceutical Association, Cayuga and Chemung County Associations.

The Secretary read resignations from the following, which were accepted :

RESIGNATIONS.

F. L. Bates, Albion ; T. M. Glatt, Utica ; W. C. Hoag, Hess Road Sta. ; Andrew Sawyer, Troy ; W. A. A. Sloat, Newburg ; William B. Smith, Troy ; Robert Wendler, Brooklyn ; Geo. S. Whitlock, Elmira.

Accepted.

A communication was received from Prof. Jos. P. Remington, of Philadelphia, acknowledging his election as honorary member.

Prof. P. W. Bedford read a preliminary report of the Committee on Papers and Queries.

The Secretary read a communication from the Cayuga County Pharmaceutical Association inviting the Association to meet with them in Auburn next year. Same was received and referred.

The Treasurer presented a list of delinquent members. After considerable discussion this list was referred to a special committee, consisting of the Treasurer, Secretary, and Executive Committee, with power to act.

The election of officers resulted as follows :

President, Dr. R. G. Eccles, of Brooklyn.
First Vice-Pres., J. Hungerford Smith, of Ausable Forks.
Second Vice-Pres., Dr. W. W. Gregory, of Buffalo.
Third Vice-Pres., C. S. Ingraham, of Elmira.
Secretary, Clay W. Holmes, of Elmira.
Treasurer, C. H. Butler, of Oswego.
Executive committee, F. L. Norton, Delhi; W. L. Dubois, Catskill; A. W. Rice, Hudson.
Delegates to American Pharmaceutical Association, Dr. J. H. Eaton, Syracuse; W. R. Rogers, Middletown; Geo. J. Seabury, New York; Clay W. Holmes, Elmira; Aaron Sager, Cortland.

The secretary read a communication from Dr. Charles Rice, Chairman of the Committee on the Revision of the Pharmacopeia, requesting that a committee be appointed to co-operate with them in their labors. The Association moved to accept this recommendation.

[The names of the committee did not reach us in time for publication.]

Mr. Charles H. Ward, and Mr. Charles S. Finch, of Stamford, Conn., and Mr. N. Noble, of New Milford, delegates from the Connecticut Association, were received and accorded the privileges of the floor.

The report of the delegates to the American Pharmaceutical Association was read by Mr. George J. Seabury.

THIRD SESSION. Wednesday morning, June 20th.

Called to order at 10.30 by the president.

Minutes of the last session read and approved.

The vice-president took the chair and the committee on president's address made their report, which was accepted, and the recommendations taken up seriatim.

During the consideration of these recommendations, the special hour having arrived for Dr. Eccles' paper, the report of the committee was laid on the table, and Dr. Eccles read a very interesting paper on "Flowers and their Winged Friends," after which the meeting adjourned.

FOURTH SESSION.

Called to order at 3 P.M.

Minutes of the last session read and approved.

Consideration of the report of the committee on president's address was resumed. After each recommendation had been considered seriatim, the report was adopted as a whole.

Dr. Huested reported verbally for the committee on legislation, that no legislative work had been done during the year.

Mr. Ingraham presented a communication referring to proprietary medicines, and the publication of the formula upon the label, together with a draft of a proposed law, which was referred to the committee on legislation.

The report of the committee on county organization and trade interests was made by Mr. A. S. Van Winkle, of Hornellsville. The committee having no funds with which to prosecute their work had been unable to do anything.

Two amendments were offered to the by-laws, one directing that the proceedings should not be furnished to members in arrears for dues, the other to correct a clerical omission. They were laid over until the next session. Upon motion that a committee of three be appointed to present the names of five members to be presented to the Governor, the chair appointed C. S. Ingram, of Elmira; R. E. Phillips, of Fulton; and A. S. Van Winkle, of Hornellsville.

The consideration of papers and queries was taken up, and answers to queries Nos. 17 and 10 were read by Prof. Bedford, and No. 2 by Dr. Eccles.

The installation of officers was then proceeded with in the usual form. The chair appointed C. Z. Otis, of Binghamton, and Dr. Huested, of Albany, as a committee to present the newly-elected officers for installation.

The committee appointed by the president to present five names to the Governor reported the following names: A. B. Huested, of Albany; C. H. Goss, of Albany; Chas. F. Fish, of Saratoga; A. W. Rice, of Hudson; W. H. Rogers, of Middletown.

A motion was made and unanimously carried that Dr. Huested be recommended for re-appointment upon the board.

Several informal ballots were taken upon the next place of meeting. Binghamton receiving the greatest number of ballots, it was moved that our next meeting be held in Binghamton, at a date to be named by the executive committee.

The meeting then adjourned.

FIFTH SESSION. Thursday, June 21st.

Called to order at 10.30.

Minutes of the last meeting read and approved. Names of several applicants for membership were read and laid over.

The amendments to the by-laws reported at preceding session were adopted.

Telegram of congratulation was received from the Missouri State Association.

The following committees were appointed by the president:

Committee on Legislation—Dr. R. C. Eccles, Brooklyn; Aaron Sager, Cortland; Dr. B. Huested, Albany; C. W. Holmes, Elmira; Clark Z. Otis, Binghamton.

Committee on Pharmacy and Queries—Prof. P. W. Bedford, New York; C. R. Paddock, Brooklyn; Dr. A. B. Huested, Albany.

Committee on Adulterations—J. Hungerford Smith, Ausable Forks; Dr. W. G. Gregory, Buffalo; Willis G. Tucker, Albany.

Committee on County Organization—A. S. Van Winkle, Hornellsville; C. S. Ingraham, Elmira; J. B. Todd, Ithaca.

Committee on Unofficial Formulary—C. S. Ingraham, Elmira; W. C. Gregory, Buffalo; E. S. Dawson, Jr., Syracuse; T. D. McElhenie, Brooklyn; C. H. Sager, Auburn.

Committee on New Remedies—Dr. Charles Rice, New York; S. J. Bendiner, New York; Gustavus Balser, New York.

Committee on Entertainment—C. Z. Otis, Binghamton; H. A. Smith, Binghamton; J. H. Eaton, Syracuse; C. W. Holmes, Elmira.

Delegates to the National Wholesale Drug Association—Geo. R. Perry, Syracuse; Frank S. Hubbard, Buffalo; W. S. Gerity, Elmira; A. B. Huested, M.D., Albany; A. McClure, Albany; P. W. Bedford, New York; W. W. Tooker, Sag Harbor.

Delegates to Connecticut.—L. E. Nicot, of Brooklyn; I. C. Chapman, of Newburg; W. B. Eddy, Whitehall.

Delegates to Massachusetts.—P. W. Bedford, New York; C. E. Lloyd, Albany; J. C. Smith, Plattsburg.

Delegates to New Jersey.—D. L. Cameron, Brooklyn; Geo. J. Seabury, New York; W. R. Rogers, Middletown.

Delegates to Pennsylvania.—C. W. Holmes, Elmira; J. W. Bachman, Hornellsville; C. K. Brown, Deposit.

The report of the Board of Pharmacy was received and ordered published. It was moved that its recommendation be referred to the legislative committee with power to act.

Prof. Bedford read a paper on Pharmacy Boards, which was referred to the same committee.

Dr. H. H. Rusby, of Columbia College, New York, then read a very interesting paper on "Homes of South Ameri-

can Drugs," which was very instructive and entertaining. The thanks of the association were returned to Dr. Rusby for his paper, and he was elected an honorary member of the association by acclamation.

SIXTH SESSION.

The president, Dr. Eccles, being obliged to return home on account of sickness in his family, Vice-Pres. J. H. Smith took the chair.

Several persons were elected members of the association.

The report of the committee on exhibits not being completed, it was moved that the same be referred to the committee for publication, when received by the secretary.

The president appointed as special committee on excise laws, R. K. Smither, of Buffalo; L. E. Nicot, of Brooklyn; Geo. J. Seabury, of New York; C. W. Holmes, of Elmira, and A. B. Huested, of Albany.

Prof. Bedford, chairman of the committee on papers and queries, read a voluntary paper by Albert M. Todd, in response to query No. 31, upon treatment and distillation of peppermint plants. Also a voluntary paper by Frank P. Dalzell, of Cold Springs, upon elixir of phosphate of iron, quinine and strychnine. Several other papers were read by title and referred to the committee for publication.

Joseph Schnell, of Binghamton, was elected local secretary, after which it was moved that the association adjourn to meet in Binghamton upon the call of the Executive Committee.

Considerable discussion upon the best time for holding the meeting resulted in a recommendation to the Executive Committee that an earlier date be selected for the next meeting.

Adjourned to meet at call of Executive Committee.

LIST OF MEMBERS ELECTED.

Mason S. Brown, Strykersville; Wm. J. Smythe, Jr., Seabright, N. J.; Frederick Herdling, Yonkers; Edward Holt, New York; James H. Bushnell, Churchville; Chas. L. Easton, Sherburne; A. J. Ditman, New York; Thomas J. Barnabee, New York; Milo E. Fletcher, Norwood; David H. Jennings, Far Rockaway; Arthur E. Tuck, M.D., Gloversville; Walter A. Tuck, Gloversville; Henry D. Spingard, New York; Louis Spingard, New York; Chas. Henry Buck, New York; Max Abramson, New York; William A. Van Duzer, Brooklyn; J. O. Barnaby, Brooklyn; H. W. Holden, Elmira, N. Y.; Henry K. Harris, M.D., New York; S. L. Hall, M.D., Mechanicsville; F. F. Henry Syvarth, Brooklyn; Wm. McAllister, Albany; J. B. Campbell, Suffern; Wm. M. Davis, Brooklyn; Chas. A. Swanson, Jamestown; Willis G. Tucker, Albany; Wm. B. Eddy, Whitehall; Albert J. Rust, Chateaugay; Wm. A. Deal, Ausable Forks; Orville A. Manville, Whitehall; Patrick N. Barry, Whitehall; Henry E. Gillespie, Ausable Forks; Lawrence Corbett, Whitehall; John E. Corbett, Whitehall; Daniel S. Parson, Jr., Dannemora; Noah A. Overmiller, New York; W. Mason Brown, Lockport; Thos. R. Anderson, Port Jervis; Geo. E. More, Oneonta; Geo. C. Waldir, New York; L. A. Skinner, Schenectady; Wm. R. W. Pound, Lockport; Jos. N. Walker, Ellenville; Herbert E. Reed, Syracuse; Geo. B. Benedict, New York; Jas. Henry Hutchens, New York; Chas. J. Deitz, New York; Evander Farrington, North Tarrytown; Chas. Roth, Rondout; Nelson H. Kettle, Schenectady; Elmer E. Rowe, Warsaw; Albert L. Embres, Tarrytown; Chas. L. Wiggins, Newburg; Albert Smith, Newburg; Frederick B. Dennis, Marlborough; Elmer E. McNamara, Marlborough; Frederick J Walling, Brooklyn; Augustus McKinstry, Hudson; Jas. A. Eisenmann, Hudson; Harry P. Carr, Kingston; Julius F. Wingenbach, Utica; Wm. D. Olney, Middletown; T. H. S. Pennington, Saratoga Springs; John O. Gladstone, Delhi; Fred. W. Schaefer, Albany; Dayton E. Slater, Hunter.

Correction.

In our review of Mr. Rother's work, entitled "The Beginnings of Pharmacy," contained in our last issue (page 120), it should read: The author derives hydrastis from the "Greek *hyein*—to rain, and *dran*—to be active," instead of "*dran*—to draw."

Reducing Obesity.—The Detroit *Lancet* describes the four plans for reducing obesity:—The eating of nothing containing starch, sugar, or fat, called the Banting system; the eating of fat, but not sugar, or starch, called the German Banting; the wearing of wool, and sleeping in flannel blankets instead of sheets, or the Munich system; not eating and drinking at the same time, or rather the allowing of a couple of hours to intervene between eating and drinking, the Schweninger system.

Methyltrihydroxychinolinecarbonic Acid is the elaborate title of a new substance proposed by Professor Demme in the *Therapeutische Monatshefte* as an additional antipyretic, the chemical formula being $C_{10}H_{11}NO_3 + CH_3I = C_{10}H_{10}(CH_3)NO_3HI$.

By the addition of 1.0 gramme of dry sodium carbonate to every 3.66 grammes of the acid in warm solution, the sodium salt is produced, having a dark brown color. The dry compound is pale yellow. The free acid is but slightly soluble in water. In its constitution this acid closely resembles thallin. Its effect in lowering body temperature is slower and longer in appearing than is the case with antipyrin. Its dose is 0.1 gramme (ab. 1½ grains) for children between 4 and 6 years, and 0.25 gramme (ab. 4 grains) for such as are 11 to 15 years old.

A NEW DROP-COUNTER.

I. Traube, of Hanover, has patented the device here illustrated (Germ. Pat. 40,277). The neck of the bottle is provided with two slits situated opposite to each other, at *a* and *c*. The hollow stopper has a small tube fused upon it, and at its opposite side contains a small interior groove, for the admission of air when the stopper is turned so as to permit the escape of drops.

A New Process for Estimating Alcohol.

If potassic permanganate is added to alcohol, mixed with dilute sulphuric acid, an imperfect oxidation takes place, even if the mixture is heated. If, however, very dilute alcohol is first mixed with large excess of permanganate, and then suddenly with about one-third of its volume of sulphuric acid, the alcohol instantly and completely changes into carbonic anhydride and water. Water may now be added, and the excess of permanganate titrated back with potassic tetraoxalate. From the amount of permanganate decomposed, the alcohol can be readily calculated, 8.244 grammes of permanganate equal 1 gramme of alcohol. The test analyses, four in number, are very satisfactory. Further experiments are promised.—B. Roese in *Zeitsch. f. angew. Chem.*

GLASS JET FOR WASHING PRECIPITATES.

Mr. S. J. Hinsdale, of Fayetteville, N. C., has sent us several specimens of a very simple and handy glass jet or nozzle for washing precipitates. The accompanying cut illustrates the construction.

C is a cork, through which passes the glass tube *a*, one end of which is open, while the other is closed by a perforated rubber cork *f*, through which passes the inner, smaller glass tube *b*. The latter is bent and slightly contracted at the projecting end *g*. At *d*, a small hole is blown in the larger tube, and a ring-shaped piece of rubber tubing is slipped over the glass tube, by means of which air may be admitted or its access shut off.

The cork having been tightly inserted into a suitable flask or bottle—say, holding a pint and about two-thirds filled with distilled water—and the rubber ring being pushed over the hole *d*, the flask is inverted and adjusted at the proper height, in a retort-stand or other contrivance, over the filter the contents of which are to be washed. The glass jet *g* should be adjusted so that the little hole *d* will be below the highest level at which the liquid is intended to stand in the small filter. As soon as the rubber ring is slipped up, water will commence to run from the jet, until the little hole is covered, and the filter will periodically be refilled, as soon as air is admitted again. The little rubber ring is applied merely to prevent spirting while the flask is being inverted and adjusted.

SEPARATING FUNNEL.*

Currier has devised the separating funnel shown in the accompanying cut. Through a cork inserted into the neck of a funnel, a glass tube is passed, the inner end of which is closed by fusion, and which has an opening (made by a file) a little below the closed end. If this tube is pushed down so low that the opening is covered by the cork, nothing will flow from the tube. On pushing it upwards, the hole becomes uncovered and will permit the passage of liquid through the tube.

Orange Wine.—In the German colony Blumenau, in Brazil, orange wine is prepared in the following manner:

To make a cask of orange wine, between 800 and 1,000 oranges are required. These are subjected to a strong pressure. About 60 pounds of sugar are dissolved in 5 gallons of water, the solution brought to a boil, skimmed and set aside to cool. It is then mixed with the orange juice, and the whole allowed to ferment. When fermentation is completed, and the wine has become clear, it is bottled. [Considerable quantities of orange wine are now made in Florida by a somewhat similar process.]

---

* After Mierzinski: "Die Riechstoffe." 8vo. Weimar, 1888.

Preparation of Diachylon Ointment.

E. DIETERICH has made experiments to ascertain the keeping qualities of Unguentum Diachylon according as it is prepared with different vegetable oils mixed with lead plaster. It is well known that all oils are liable to exhibit very remarkable and unexpected peculiarities in their different practical applications. This consideration led the author to examine mixtures of lead plaster with different oils both immediately after their preparation and after four and eight weeks, with a view to determine the amount of free oleic acid by titration. For this purpose, he dissolved 3 Gm. of the salve in 30 C.c. of ether, added three drops of solution of phenolphtalein and then added $\frac{1}{10}$ normal alkali until the acid was neutralized.

The results are given in the following table:

Diachylon Ointment prepared with	Required....milligrams of potassa after being prepared.		
	2 hours.	4 weeks.	8 weeks.
Oil Almonds exp.	30.8	30.8	30.8
" Peanut	30.8	30.8	30.8
" Cotton seed	30.8	42.0	47.0
" Sunflower	33 6	33.6	36.
" Cod Liver	33.6	33.6	36.
" Walnut	30.8	42.0	47.
" Linseed	30.8	36,4	42.
" Olive, comm.	30.8	30.8	30.8
" Poppy	30.8	36.	36.4
" Rape	30.8	36.4	45.
" Sesame	30.8	30.8	30.8
" Castor	50.4	50.4	53.

Increase of acidity generally caused also an increase of rancid odor. The best mixtures, regarding flavor, were obtained with olive and castor oil, particularly the latter. —*Ph. Post.*

It will be seen from the above, that cotton-seed oil is not as good an ingredient, though it makes a very smooth and homogeneous mixture, for which reason mainly it was adopted, in this preparation, by the U. S. Pharm.—ED. AM. Dr.

Salol Tooth Powder.

Calcium Carbonate, precip.	750	parts.
Sugar of Milk, powd.	100	"
Orris Root, powd.	100	"
Pumice, powd.	30	"
Salol.	20	"
Oil of Peppermint.	5	"
" " Geranium.	1	part.
" " Staranise.	½	"
" " Cloves.	½	"

Mix intimately.—After *Pharm. Centralh.*

Salol Tooth Wash.

Cloves.	10	parts.
Cinnamon, Ceylon.	10	"
Staranise.	10	"
Cochineal.	5	"
Alcohol.	1,000	"

Macerate during eight days, then add:

Oil of Peppermint.	5	parts.
Salol.	25	"

Agitate frequently, and filter after 24 hours. (DIETERICH, *ibid.*)

We should have given the directions as follows: Reduce the cloves, cinnamon, staranise, and cochineal to a moderately fine powder, moisten it with alcohol, pack it in a percolator, and percolate until 970 parts of tincture are obtained. In this dissolve the oil of peppermint and salol.

Using this process, the operator can make the preparation in 24 hours, or even in less time, if small amounts are operated on.

Pepper-growing a Profitable Occupation.

THE *Straits Times* recently advised planters to turn their attention to the cultivation of pepper, which, it is claimed, is a crop likely to prove a very paying one to the producers, the prices being high, and the cultivation a comparatively easy one. The latter is now almost exclusively in the hands of the Chinese, only one European, Mr. Stevenson of Klang, in the Straits Settlements, having thus far ventured upon pepper-growing. One indispensable condition for the success of pepper-growing is good choice of ground, especially as regards the situation of the land. Flats or gently sloping land of sedimentary and plutonic formation have invariably been found most suitable for the purpose, and such lands are obtainable in sufficient quantity to meet any demand likely to arise. In the neighboring native states, far-reaching and fertile plains are available in any quantity. The consumption of pepper, not only in Europe and America, but also in China, has of late proved so steady and rapidly increasing that the supply has utterly failed to overtake the demand, especially because Acheen, in former times the chief source of supply, does not now produce any quantities worth mentioning.—*Chem. and Druggist.*

Magnolia Balm.

A REPETITION of the analysis of Hager and F. M. Clarke has been made by the analyst of *New Idea*, and he reports that the balm consists of zinc oxide (colored with carmine) in suspension in a little dilute glycerin, and perfumed with oil of bergamot, oil of lemon, and perhaps one other odor. The following formula makes a preparation substantially the same as the proprietary article:

Zinc oxide	4 drachms
Glycerin	1½ fl. oz.
Water	2 "
Carmine	½ grain
Oil bergamot	1 minim
Oil lemon	1 "

Johore Ipecacuanha.

MR. TRIMEN, the Director of the Ceylon Botanic Gardens, in his last reports refers to the introduction of ipecacuanha in India, and states that as early as 1848, or sixteen years before the first plants reached India, ipecacuanha was introduced in Ceylon, but that its cultivation in that island did not meet with any considerable amount of success, and it does not look as if we could ever expect to receive the drug in commercial quantities from Ceylon, especially if, as now seems probable, the Straits Settlements should furnish considerable quantities in the near future, for the use of the root is limited, and any successful cultivation on a large scale in various countries would soon bring the price down to a level which would cease to pay the cultivators. The sample of Johore ipecacuanha, which was recently exposed for sale in Mincing lane, does not differ materially from that which first imported. If anything it is more varied, thin and stout roots, possessing the gray and reddish surfaces, making up the parcel. The roots which we selected for analysis were a fair sample; the woody column was somewhat thick. The percentage of emetine we found in the specimen is 1.4, somewhat lower than the specimen examined by Mr. Ransom afforded; but this may be accounted for by the thickness of the woody column, and the difference is no more than may be expected of two different samples of root.

Cola Nuts.

MESSRS. JOBST and HESSE, of Stuttgart, have made some experiments with cola nuts, with a view of ascertaining whether they would make a beverage which could be used in place of coffee or chocolate.

As is well known, cola nuts are very rich in caffeine, of which they contain about 1.83 per cent, and have even been found to contain 2.35 per cent.

The fresh nut is very sweet, and afterwards astringent and bitter. As they reach the European [or this] market they are half dried, and somewhat resemble chestnuts externally. The taste of the yellowish-brown flesh or kernel is insipid, somewhat recalling that of cacao shells. On the one hand, the chemical constituents of the substance proclaim it to be a stimulant of the first rank; and on the other hand, its taste does not promise much for it as a source for a pleasant beverage.

Messrs. Jobst and Hesse deprived the nuts of their shells, roasted them like coffee, and reduced them to powder. The aqueous infusion of this had a handsome color, but its taste was not particularly agreeable, reminding one strongly of acorn coffee.

Next they tried to make "chocolate" of it, but here the difficulty arises that it does not contain enough fatty matter, which makes it necessary to incorporate a good deal of butter of cacao with it, besides the sugar. And this resulted in the production of a chocolate of very handsome appearance and odor, though of a rather peculiar, and not quite agreeable taste.—After *Industrie-Blätter.*

Impurity in Hydrochlorate of Quinine.

AT a recent meeting of the Paris Society of Pharmacy (*Chem. and Drugg.*), M. de Vrij made a communication on the occasional presence of hydrochlorate of cinchonidine in commercial hydrochlorate of quinine. The impurity he would attribute to the natural composition of the new cinchona barks now in the market. As a test he recommended the following:

Quinine Hydrochlorate	1	gramme.
Water of 50° to 60° C.	40	grammes.
Pure neutral Chromate of Potassium.	0.30	gramme.

The chromate is to be added after the mixture has been effected.

At the temperature given, the quinine is rapidly precipitated, while the cinchonidine remains in solution. On adding caustic soda to the clear liquor, the cinchonidine is thrown down, even in the cold, but more speedily by the help of a gentle heat. The solution, however, should not be too alkaline or overheated, as soda will then transform the alkaloid into a resinoid substance.

A Volatile Poison in the Exhalations of Man and some Animals.

BROWN-SÉQUARD and D'Arsonval announce the existence, in the air expelled during expiration, in man and some animals, of a highly poisonous agent. Up to the present it was known that the exhaled air contained, nearly always, some ammonia, in very minute traces, also carbonic acid gas, and besides, some organic matters, which, though they may not be putrid at the time when they are thrown out into the air, yet undergo change very rapidly, even at a low temperature.

The authors above quoted, however, have found that the lungs of man, also those of the dog and hare in a state of health, produce, and discharge with each expiration, a minute quantity of a very violent poison, which from the experiments thus far made appears to have the properties of an alkaloid. When its solution was injected into the circulation of dogs, etc., the latter rapidly died. Heat does not seem to be very much injurious to the body, as a temperature of 100° C. appeared to render it even more active than it had been previous to heating. Further accounts will be published in a short time.—*Rep. d. Pharm.*

The Gum Benzoin Trade.

BRITISH consular reports from Java state that, during the year 1887, 6,298 piculs gum benzoin were exported from Padang (west coast of Sumatra). Nearly the whole of this went to Java, small shipments to Holland, the Straits Settlements, and to America. This quantity is one of the largest on record, but it should be observed that the shipments of gum benzoin from this port are steadily on the increase. In the thirty years from 1858 to 1887 inclusive, 140,901 piculs have been exported from Padang.

The Aniline Treatment of Phthisis.

THE aniline treatment of phthisis consists of frequent administration of acetanilide (10-grain doses four or five times a day) and the inhalation of *pure* aniline mixed with an essential oil, such as anise, eucalyptus, or peppermint oil. A suitable mixture is aniline, ʒi.; eucalyptus oil, ʒvij.; mix. At the same time ointment of iodine or iodoform, with eucalyptus oil, is rubbed into the chest. The acetanilide breaks up in the system, aniline being one of the products. Although cyanosis and other disagreeable symptoms supervene, the decomposition of the acetanilide is apparently part of the cure, so also is careful attention to dietary. In the *Lancet* of March 24th, there are some notes on an indisputable case of four years' standing which recovered under this treatment.

Preservative Sugar.

Salicylic Acid	50 parts.
Sugar, in fine powder	950 "

Triturate the salicylic acid with some of the powdered sugar, in a mortar, and gradually incorporate it with the remainder.

This compound is used for preserving fruits and other articles of fruit. The salicylic acid prevents the development of the fungi and fermentation. One ounce of it is sufficient for about 6 pounds of preserves. The latter are prepared with sugar in the usual manner, transferred to suitable vessels, and a proportionate layer of the preservative sugar sprinkled on top.—*Vomacka.*

Solution of Iron in Caustic Soda.

WHEN a strong current of air is blown into a hot, concentrated solution of caustic soda, containing about 34 per cent NaOH, standing in an iron vessel, or to which finely divided hydrated ferric oxide has been added, perceptible quantities of iron are dissolved without discoloring the liquid. In fact such a solution will remain clear and colorless for several days, at the ordinary temperature; ultimately it becomes turbid, yellow, and finally red, owing to the presence of the hydrated ferric oxide, but this color disappears again on heating. When the colorless solution is diluted, the oxide is precipitated in about half an hour, but again passes into solution when the liquid is concentrated. Hydrogen sulphide at first produces a deep cherry-red coloration in the colorless liquid, and by its continued action a greenish-black precipitate forms, which settles down, leaving a clear solution, free from iron, but slightly yellow from sodium sulphide. It is suggested that the iron exists in solution as a perferrate, analogous to sodium permangate, and with the formula $NaFeO_4$, therefore.—L. G. ZIRNITÉ in *Chem. Zeit.* (Abst. from *J. S. Chem. Ind.*)

Reaction of Cotton-seed Oil.—A small quantity of the oil is mixed with an equal quantity of a saturated solution of normal lead acetate; ammonia is then added, and the whole shaken. Under these circumstances cotton-seed oil assumes a reddish orange color, whilst butter, olive, castor almond, and other oils give a red color.—M. LABICHE in *Arch. de Pharm.* and *J. S. Chem. Ind.*

Lac Ferri, *Iron Milk.*

PYROPHOSPHATE of Sodium	20 parts
Solution of Chloride of Iron	23 parts
Glycerin	50 parts
Distilled Water	enough to make 1,000 parts

Dissolve the Pyrophosphate of Sodium in 400 parts of Distilled Water, add the Glycerin, and filter. Dilute the Solution of Chloride of Iron (*U. S.*) with 400 parts of Distilled Water, pour this slowly into the cold solution of the sodium salt, under *gentle* and *slow* stirring, and add enough water to make 1,000 parts.

If it is desired to remove the small amount of chloride of sodium produced by the reaction—though it may be left, being harmless—an excess of iron must be used, the sodium pyrophosphate solution poured into the iron solution, and the whole raised to boiling. The precipitate is then collected, washed and suspended in water. But the product will not possess a "milk-like" character, as the precipitate, in the latter case, is soon deposited at the bottom. The first mentioned process yields a permanent "milky" liquid.

[The original formula, by E. Dieterich, in *Ph. Centralh.* directs 30 parts of Solution of Chloride of Iron, which refers to that of the Germ. Pharm., containing 10 per cent of metallic iron. It has been transcalculated into that of the U. S. Ph., containing 13.06 per cent of iron.

The Camphor Trade in Formosa.—The Chinese Governor of the island of Formosa some time ago declared the camphor trade in the interior of the island a Government monopoly, thereby greatly injuring a number of private traders, who for many years had dealt extensively in the article on their own account. Troubles ensued with some of the foreign houses, and the United States Government addressed a remonstrance on the subject to the Tsung-li-Yamen in Pekin—a body somewhat resembling our Foreign Office. We now hear that this appeal has remained fruitless, the Pekin authorities, in a communication dated February 16th, fully justifying the action of the Governor of Formosa, and declaring their intention of maintaining the monopoly. It appears that in those parts of the island now thoroughly brought under Chinese control the camphor trade is free, or at any rate subjected to but few restrictions; but, unfortunately, in those districts scarcely any trees are left, while only in the mountainous interior of the island, nominally under Chinese dominion, but in reality occupied by tribes of warlike savages, the camphor laurel still flourishes. In the camphor districts of the interior the Chinese, at a considerable cost, maintain military stations, and they partly defray the expense of these by keeping to themselves the exclusive right in the camphor trade. The Tsung-li-Yamen also point out that in prohibiting foreigners from penetrating into the unsafe centre of the island they are actuated by a desire to avoid such complications with foreign governments as might result from the murder of their subjects by the aborigines. The Chinese arguments appear to be unanswerable, and we may therefore take it that the camphor monopoly will be kept up—at any rate for the present.—*Chem. and Drugg.*

Detecting Gas Leakage.—Dr. Bunte's method for detecting gas leakage by means of palladium paper has been rendered still more delicate by Herr Schaufflers, who uses, to every three parts of chloride of palladium, one part of chloride of gold. The increase of sensitiveness may be partly due to catalytic action, that is, to the mere presence of the gold, perhaps to the action of traces of acetylene upon the gold solution. The solution used for making the paper contains ⅛ per cent of chloride of palladium, and ¼ per cent of chloride of gold. One pint costs about nine shillings, and will steep filter paper enough for 8,000 to 11,000 tests. The main sources of error are tobacco smoke, stoves, and smoky chimneys, which let carbonic oxide into the room, the vapor of fusel oil, onion smell, mercury vapor, and sulphuretted hydrogen.

Nitroglycerin in Heart Failure.—Dr. M. H. Firnell, of Philadelphia, after reporting three cases of syncope in which hypodermic injections of two drops of a 1-per-cent solution were used, remarks (*Med. and Surg. Reporter*): "One who has seen cases of heart failure treated in the usual way can have no conception of the brilliant results which may be obtained by the hypodermic use of nitroglycerin."

Creosote Mixture for the Treatment of Phthisis.—Creosoti, ♏xv.; Tr. Gentian., ♏xlv.; Spir. Vini Rect., f. ʒviss.; Vini Xerici, ad f. ℥iij. Take of this one-third, thrice daily. The amount of creosote may be gradually increased to double this amount. The treatment should be continued for three to twelve months, and its beneficial effects are most marked in recent cases.

Borofuchsin, recently proposed by Prof. Lubinoff, as a staining medium for tubercle bacilli, consists of: Fuchsin, 7½ grains; Boric Acid, 7½ grains; Absolute Alcohol, 4 drachms; Distilled Water, 5 drachms. This mixture is clear, slightly acid, and is not liable to spoil from age.—*Med. and Surg. Reporter.*

THE

American Druggist

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XVII., No. 7. WHOLE No. 169.

FREDERICK A. CASTLE, M.D.....EDITOR.
CHARLES RICE, PH.D.....ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N. Y.

SUBSCRIPTION PRICE per year, - - - - - - $1.50
SINGLE COPIES, - - - - - - - - - - .15

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed in care of the Publishers.

The AMERICAN DRUGGIST is issued in the latter part of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

EDITORIALS.

SOME time ago a warfare was inaugurated by French physicians and pharmacists against antipyrine, chiefly on account of its being protected by a patent or copyright, and possibly—though not openly so stated—because the profits of the patent found their way across the border, into the pockets of the German patentee.

Here is what the *Répertoire de Pharmacie* says about the matter in its issue of May, 1888:

"At present, when the failures of this trans-Rhenish drug can no longer be counted, it is well to announce the measure which has just been adopted by the Governing Board of Public Assistance. At the meeting of May 1st, held at the Academy of Medicine, our master, M. Bourgoin, announced that the Governing Board of Public Assistance followed the principle of making its own medicines, or obtaining them by contract. It has not been able to do this so far in the case of 'dimethyloxyquinizine,' the antipyrine of the Germans, as this remedy is the subject of an unjustifiable monopoly."

"Anxious to protect its interests, and in order to avoid all suits, the Governing Body of Public Assistance has decided, upon the proposition of M. Bourgoin, that this remedy shall hereafter be dispensed in the Paris hospitals under the name *analgesine*. The thing is worth the trouble, for, during the first quarter of 1888, the hospitals have purchased 116 kilogrammes of it (about 4,092 avoirdupois ounces), at an expense of 60,000 francs calculated for the whole year, assuming that the consumption would be kept up at this rate."

"But, even from a scientific point, it had been originally pretended, that 'dimethyloxyquinizine' is a substitute for sulphate of quinine. This pretension has not been justified by the facts, and the best proof is, that the consumption of sulphate of quinine in the hospitals is now precisely the same as formerly. Hence the name *antipyrine* does not properly belong to the 'dimethyloxyquinizine.' On the contrary, it is now generally regarded as a remedy for allaying pain. If this is so, the name *analgesine* is quite appropriate for it."

"It is hoped that this new name will be accepted without objection by the medical profession. Frenchmen will then be able to manufacture the analgesine, and the Governing Board of Public Assistance will be able to obtain it by contract, like other chemical or pharmaceutical products. Besides, if a product is a specialty or monopoly, the buyer is compelled to accept it with eyes shut, all examination being impossible or illusory; or it may happen that the buyer will obtain antipyrine which turns yellow on exposure to air, and gives out a disagreeable odor of benzin."

"We report this decision, with the remark that it was not necessary to assure us of the sentiments of right and patriotism of our master. All of us who know him, can appreciate the persistence with which this eminent professor has striven to protect the French interests of pharmacy."

As a pendant to this editorial of our French contemporary, we give the following brief note from the Paris correspondent of the *Chemist and Druggist* (May 26th):

"It will probably be remembered that 'analgesine' is the new name proposed to designate antipyrine, and thus avoid conflict with those claiming property in the familiar designation. But it was alleged at a meeting of the Academy of Medicine that two country physicians have been in the habit for a long time of prescribing under the name of 'analgesine' a certain mixture of their own, entirely different from antipyrine. The parties interested in the patent rights make all they can out of this complication, while others maintain as stoutly as ever that the copyright being *de jure* null and void, any one is free to make and sell antipyrine under its best known appellation. The truth in all this appears to be that the threatened confusion of 'analgesines' is grossly exaggerated, if it existed; and that, on the other hand, while every one loudly proclaimed the antipyrine patent's invalidity, no one cares to join issue with the doughty Dr. Knorr. In the mean time the infringement suit against M. Petit is still on, but no progress has been reported lately."

It is much to be regretted that so much precipitation, and, we fear, also, national prejudices, have been allowed to become prominent factors in this movement. We do not wish to appear as the champions of Dr. Knorr or of any one else who is interested in the antipyrine patent. But every chemist knows that Dr. Knorr discovered the compound and a method for its preparation. He announced it originally as dimethyl-oxy-chinizin, but has given this theory up long ago, as a more intimate study has led him to view its constitution differently. (See this JOURNAL, 1887, 164.) Our French confrères seem to have overlooked this fact altogether. No one can patent a product of nature, but he can patent the process by which it can be obtained, if original. In France a patent is only valid if worked there, and to comply with this law the owners of the antipyrine patent erected a factory on French soil. It is true, the French laws probibit the patenting of medicines or medicinal compounds, but so far as we know, this only applies to such as are specially designed to serve as such. Should a substance incidentally be found serviceable as a medicine, while forming the link in a chain of technical products, the case is probably different. Ethically, and theoretically, we are opposed to patents on medicines ourselves, but, as long as the law permits their issue, our own or anybody else's objection cannot interfere with established rights. Every patent is of course a monopoly, but why should one special patent be decried as an oppressive monopoly, and not all patents? A confiscation or annulment of a patent, provided it is rightfully granted, is a serious breach of contract on the part of a state. Had antipyrine remained a comparatively insignificant article, such as kairine, thalline, etc., it would probably not have been attacked at all.

The writer of the editorial above quoted is evidently not well posted on the therapeutic history of antipyrine. This body was ascertained, at a very early date after its discovery, *not* to be a substitute for quinine as a miasmatic or anti-febrile remedy, but only as an antipyretic, and even to exceed quinine and all other then known antipyretics in the power of reducing febrile temperatures. It has not been claimed to be, nor ever been regarded by competent authorities as, a substitute for quinine. But it is a true *antipyretic*, or "remedy against heat." Its anodyne and analgesic properties are a comparatively recent discovery, the remedy having been used for several years before this property became known. That the "failures of antipyrine can at present no longer be counted" is a rather wild statement, as it depends altogether on what it was tried to be used for.

We are in receipt of a letter from Dr. S. Mierzinski, the editor of the *Drogisten-Zeitung*, and author of the new work on Perfume ("Riechstoffe," etc.) from which we have given a number of extracts in our recent issues, regarding the article entitled "The Manufacture of Lithium Salts for Medicinal and Technical Purposes" (see April number, page 62). We there gave, on the authority of Graham-Otto's "Lehrbuch d. Chemie" (new edition), the process which is now followed in Schering's factory to decompose lepidolite and to prepare from it the carbonate of lithium.

Dr. Mierzinski draws our attention to the fact that he is the author of this process, having published it, in 1868, in the *Zeitschrift d. Oesterr. Apotheker-Vereins*, p. 53.

Our respected contemporary, the *Deutsch-Amerikanische Apotheker-Zeitung*, in its issue of June 1st, has an editorial in which the writer gives his views respecting the steps at present being taken to prepare for a new edition of the United States Pharmacopœia. We shall have occasion in the future to discuss a few points alluded to by our confrère, on which we hold somewhat different opinions. At present we wish merely to direct attention to a statement which we cannot account for and is certainly based on a misconception. The writer says: [we translate]—"What reasons induced the Committee (of Revision, etc.) of the U. S. Pharmacopœia *to omit, in the later edition, the assay process of Extractum Cinchonæ Fluidum, which had been given in the edition of* 1880, is not known to us. At all events the insertion of all such tests is to be recommended, provided they afford, even only approximately, a criterion of the quality and genuineness of the preparation."—The italics of the preceding quotation are our own.

We know of no edition of the U. S. Pharm. of *any date* which contained an assay process of Fluid Extract of Cinchona. The U. S. Pharm. of 1880 was not issued until the latter part of 1882, and the text of this has not been altered since its appearance. Hence there has only been *one* edition of the U. S. Pharm of 1880, the title page of which bears the year 1882. Of the pharmacopœia of 1870, which appeared at beginning of 1873, the various reprints that were made of it, bore on their title pages the year of issue, which occasioned much confusion abroad, as some of these reprints were mistaken sometimes by prominent writers for new editions or revisions of the work.

Considering the fact that there are few retail establishments which offer so many facilities for decorative treatment of their contents as the drug-store, it is rather surprising how little attention is paid by pharmacists to this element of business management, and also how seldom the effect of a reflected light, strong shadows, and effective back-ground are properly considered. Taking, for example, the effect of gaslight, it is more often than otherwise the case that the lights are so placed as to dazzle, by their glare, the eyes of the passer-by, and prevent him from distinguishing the details of the objects in the interior of the store. As commonly arranged, they have, in some degree, the effect of a "jack" used by hunters in shooting deer at night, and render it difficult to distinguish objects beyond them. As an illustration of an opposite effect, observe the method of lighting employed by dealers in pictures. In this case the greatest pain is taken to screen the light so that it can only reach the observer as a reflection from the surface of the objects exhibited. To apply this principle to a drug store, the light should come from the same source in the night that it does in the day-time, namely, from the windows, where, along the upper part of the window-spaces, lamps or gas-jets should be arranged in number sufficient to light the main body of the store, and having reflectors between them and the windows which will intercept and throw towards the back of the store all rays which would otherwise pass outward, toward the street. At the back of the store should be placed objects, which, in turn, reflect the light towards the front, such as shelf-bottles with gilt lables, show-bottles with colored contents; while midway should be arranged such things as toilet-bottles in cut-glass, with sparkling facets and numerous angles. Any chandeliers in the centre of the store should be but dimly lighted to permit a brilliant light.

One of the most ingenious effects of lighting which we remember to have seen used to be in Houston Street, just east of Broadway, in this city, where, on a corner of the street, was a building surmounted at the angle by a large gilt eagle with outspread wings. On the cornice just below it were arranged a number of lights with reflectors, which threw the light upward against the eagle, and with screens which prevented the lights themselves from being seen from the street. At night the effect was very bold, and the great eagle shone out strongly against the back-ground of dark sky in a manner which attracted the attention of every one who looked in that direction. Druggists who wish to place an illuminated sign in front of their stores may take a valuable hint from the above, and produce something much more effective than the transparencies commonly used.

In selecting a back-ground of color for the shelving which ordinarily covers the side-walls of every store, it is too often the case that pale tints are used, and the effect is to render the outlines of the bottles on the shelves indistinct. If instead, a dark color such as the maroon or Indian red used for the walls of many picture galleries were employed, the brilliancy of the glass shelf-ware with gilt labels would be greatly heightened. A wall paper with decided pattern, such as is sometimes employed, is not the thing to use. What is needed is a solid body of dark contrasting color, which will also harmonize with the predominant colors of the articles placed on the shelves. For this purpose nothing serves better than the dark red above spoken of. The complementary color of red, viz., green, is oftentimes quite effective, but for this purpose a pale green will not not answer; it, too, must be dark and decidedly green. Green will be especially effective with mahogany-colored shelf-fittings and cornice.

Some time since we inserted among the items in the advertising pages one referring to the death, in San Francisco, of one M. D. Babcock, alleged to be the inventor of the fire-extinguisher of that name.

It seems that the truth is that this allegation was purely the product of a deranged brain, and that Professor James F. Babcock, a well-known chemist of Boston, was actually the inventor. Unfortunately for Professor B., the invention has not resulted in a fortune for himself, whatever may have been the proceeds for the manufacturers.

The Connecticut Valley Dental Society and Massachusetts Dental Society are to hold a union meeting in the Institute of Technology, at Boston, on the 10th to 13th of July, inclusive; and solicit from the drug trade an exhibition of such things as druggists' sundries which are of interest to dentists.

The article on page 102 of our last number, contributed by Mr. S. J. Hinsdale, in which a new test-paper is described, should have had the heading: "A New Test-Paper for Acids," since it is as delicate towards sulphuric and other acids as against hydrochloric, which was there mentioned in the title.

American Pharmaceutical Association.

The thirty-sixth annual meeting of the American Pharmaceutical Association will be held in Detroit, Mich. First session, Monday, September 3d, at 3 P.M. Aside from the usual attractions presented by our meetings, preparations have been made by the pharmacists of Detroit for our reception, matters both scientific and recreative being elaborated to an unusual degree.

The Michigan Pharmaceutical Association holds its annual meeting simultaneously with our own, and it may be safely predicted that the members attending both associations will outnumber any collection of pharmacists in the previous history of our country.

Full information regarding hotel and railway rates will be furnished our members in the usual annual circular of the permanent secretary.

The exhibition promises to equal, if not surpass, that of any preceding period of our history. Commercial interests are now recognized as a part of the object of our meetings, and it is to be presumed that extraordinary endeavors will be made to render conspicuous, displays of commercial products. The local secretary, Mr. James Vernor, 235 Woodward avenue, Detroit, will give information regarding matters connected therewith.

Dr. A. B. Lyons, 423 Second street, Detroit, Secretary of Committee of Scientific Papers, should receive the scientific papers at as early a date as possible.

J. U. Lloyd, *President.*

Early-closing in Hamilton, Ontario.—The *Canadian Pharmaceutical Journal* published the following municipal ordinance, passed May 14th.

By the Corporation of the City of Hamilton.

"1. All shops within the municipality of the City of Hamilton, belonging to the class known as Chemists' and Druggists' shops, shall be closed at or before 8 o'clock in the afternoon of every day in the week, excepting Saturdays, Sundays, and days immediately before public or municipal holidays, and shall be closed throughout every Sunday except between the hours of 10 and 11 o'clock in the forenoon, between the hours of 3 and 4 o'clock in the afternoon, and between the hours of 8 and 9 o'clock in the evening."

The Sixth International Pharmaceutical Congress will assemble at Milan in September next. The preliminary arrangements are in the charge of the Associazione Farmaceutica Lombarda, and a very general participation of other countries has been promised. It would be a good thing for our Italian confrères if they could meanwhile manage to publish their first national pharmacopœia, which has been hanging fire now for about seven years.

Christy & Co., 25 Lime Street, London, England, wish us to inquire whether any of our readers will sell to them two complete sets of the "Working Bulletins" by Messrs. Parke, Davis & Co., the first volume of which was published in 1883.

British Pharmacopœia.—A report of the British Pharmacopœia Committee was recently presented to the Medical Council, in which it was stated that there has been a profit on the production and sale of the Pharmacopœia amounting to £1209 8*s.* 2*d.* It was also announced that a report for 1887 on the work had been received from Prof. Attfield.

The Massachusetts College of Pharmacy has elected the following officers: President, Henry Canning; vice-presidents, S. A. D. Sheppard, W. C. Durkee; secretary, C. C. Williams; treasurer, H. K. Appleton, Jr.; auditor, L. D. Drury. Trustees (until 1889): W. B. Potter, C. A. Siegmund, E. C. Marshall; (until 1890) J. G. Godding, G. M. Hoyt, E. H. La Pierre; (until 1891) L. D. Drury, W. F. Sawyer, J. C. Benedict; (until 1892) W. C. Durkee, H. K. Appleton, W. W. Bartlet; (until 1893) S. A. D. Sheppard, H. Canning, C. C. Williams.

Gluten Bread.—A recent improvement in the mode of preparing gluten bread for the use of diabetic persons is said to render it much more palatable. It resembles ordinary bread in its general aspects, and is not unlike in taste certain kinds of cakes which are readily eaten by most people. Moreover, it is easily masticated. The formula from which this new gluten bread is made is set down thus: Best quality of yeast, 20 grammes; cold water, 120 grammes; butter, 125 grammes; gluten flour, 500 grammes; and eggs, 4. For one loaf. The yeast is stirred carefully and quietly into the water, then the eggs and butter are added, and the whole melted. The gluten flour is mixed in and worked up with these ingredients, and a round loaf is thus made which is about 18 inches wide and 20 inches deep; it is placed before the fire for about an hour to cause the dough to rise, and is baked in an oven heated from below. Gluten flour is manufactured expressly for this and other kinds of cakes.—*Monthly Magazine.*

What Medical Men Said of Anæsthetics Forty Years Ago.—Commenting on the reports of the first use of ether as an anæsthetic in surgery, the Philadelphia *Medical Examiner* expressed the views of the conservatives in the following terms: "We are persuaded that the surgeons of Philadelphia will not be seduced from the high professional path of duty into the quagmire of quackery by this will-o'the-wisp. . . . We cannot close these remarks without again expressing our deep mortification and regret that the eminent men who have so long adorned the profession in Boston should have consented for a moment to set so bad an example to their younger brothers, as we conceive them to have done in this instance. If such things are to be sanctioned by the profession, there is little need of reform conventions, or any other efforts to elevate the professional character; physicians and quacks will soon constitute one fraternity."

Vigier's Coryza Powder.—This remedy, which is greatly prized and often prescribed by French physicians, has the following formula, as given by M. Vigier himself (in the *Gazette Hebdom. de Méd. et Chirurg.*): Finely powdered starch, boracic acid, tincture of Siam benzoin, of each equal parts. To be used as a snuff, frequently and plentifully. We would remark here that powdered gum benzoin should not be used in lieu of the tincture, as is frequently done by American pharmacists in preparing snuff powders. When the gum is used, the resulting powder is tenacious, packs easily, and is difficult to draw into the nostrils. The same may be said of camphor. It is far better to use the tincture and allow the alcohol to evaporate, as in this manner a granular powder is obtained which has not the vice above referred to.—*National Druggist.*

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 2,178.—**Vapo-Cresolene** (S., Buffalo).

This is a trade-mark for what is commonly known as cresol, which you will find a description of in either of the leading dispensatories or works upon coal-tar and its products.

No. 2,179.—**"India-rubber" Cement for Glass, etc.**

Try the following: Caoutchouc, 20 grains; chloroform, 2 fl. oz.; mastic, ½ troy oz. Dissolve the caoutchouc in the chloroform, then add the mastic, and set it aside for a week, or until solution has taken place. This cement can be used cold, and may be applied with a camel's-hair brush.

No. 2,180.—**Mettauer's Aperient.**

This is a mixture composed of:

Aloes	3 6
Sodii Bicarbonatis	3 10
Tinct. Lavandulæ Comp.	fl. ℥ 2
Aquæ	fl. ℥ 32

M.

No. 2,181.—**Machine-folded Filters** (Chicago).

The "folded filters" you refer to are those made by the well-known house of Schleicher & Schuell, of Dueren, Germany, and may be had through dealers in chemical apparatus (see our advertisements).

We are glad that we have an opportunity of drawing the attention of our readers to these exceedingly useful, labor- and time-saving filters. They are made in three qualities. No. 588, in diameters from 12.5 to 50 centimeters, for all ordinary filtrations. No. 586 made of special paper, for the filtration of viscid, syrupy or other liquids, which often cause much trouble and annoyance. And No. 580, all of large size, with hardened points preventing them from breaking.

Since we have begun to use these folded filters, we have become convinced that they are indispensable. Of course, they cannot be used for fine analytical work, when the precipitate is the part wanted, as it would be difficult to detach this.

No. 2,182.—**Cure for Wrinkles** (Modesto, Cal.).

This correspondent refers to an item in one of our recent issues in which "Lanolin" is spoken of as a cure for wrinkles, and wants to know whether it is to be used pure or mixed with anything.

Our private opinion of the subject is, that it would be necessary to incorporate with it a very large percentage of credulity to have much effect upon a well-developed wrinkle; or, in other words, it will work best with such persons as are most susceptible to the remedial virtues of the "Faith Cure."

No. 2,183.—**Hair Oil** (J. M. H.).

One of the most commonly used compounds, and one of the best we are acquainted with, is a mixture of castor oil and alcohol, about as follows:

Castor oil	7 fl. oz.
Alcohol	9 fl. oz.

This may be scented according to individual preference. It is customary to add to it certain substances supposed to act either as tonics or as detergents, such as quinine, tincture of cantharides, etc., only a small quantity of each being usually added. Tincture of quillaja may also be added to advantage.

No. 2,184.—**Indelible Stencil Ink** (M.).

The following formula has been furnished by one of our correspondents:

Dissolve 1 troy ounce of nitrate of silver in 4 fl. oz. of stronger water of ammonia; then add 1 troy oz. of bitartrate of potassium and 1 troy oz. of sugar, and dissolve by agitation.

Mix thoroughly 1 troy oz. of powdered acacia with 3½ fl. oz. of boiled linseed oil, and incorporate 40 grains of lampblack.

For use, mix about equal quantities of the preceding solution and mixture on a slab, and apply it by means of a stencil. The fabrics must be afterwards heated or passed over with a hot iron to make the marks lasting.

No. 2,185.—**Liquid Franconia** (Supplement to query 2,172).

Dr. Laurence Johnson, of this city, informs us that he made some experiments about a year and a half ago to devise a preparation having the properties of this nostrum. He finally arrived at the following formula:

Prepare a thick, almost jelly-like infusion of flaxseed, and add to it 20 per cent of its volume of glycerin, with which has been mixed sufficient salicylic aicd to make the

finished product contain 2 grains in each fluidounce. Perfume according to taste.

Dr. Johnson says that, while this may not be the exact formula of the article in question, it yields a close imitation, and one which is an excellent remedy not only for chapped hands, but also for many cases of eczema.

No. 2,186.—**Insect Powder** (M.).

This correspondent refers to the article entitled "Insect Remedies," contained on page 13 of our last January number, and desires to know whether the "Pyrethrum" there mentioned is the *Pyrethrum carneum* or "Persian Insect Powder."

In reply, we would say that there are several species of Pyrethrum (or Chrysanthemum) which have insecticidal properties. The best known are *P. carneum*, *P. roseum*, and *P. cinerariæfolium*. The two former are usually grouped together as "Persian Insect Flowers," while the last-mentioned is known as the "Dalmatian" or *buhach*. It is now generally conceded that the Dalmatian flowers are more active and energetic than the Persian. If our correspondent will consult our volume for 1887, p. 3, he will find an interesting article on the subject.

No. 2,187.—**Bismuth Hair Dye** (J. H. S.).

In a formula for hair-dye published on page 95 of our May number, taken from a European exchange, "nitrate of bismuth" is quoted as one of the ingredients. We have now ascertained that the subnitrate was meant, and that the formula should read as follows:

Subnitrate of Bismuth	10 parts.
Solution of Potassa [10%]	q. s.
Citric Acid	q. s.
Glycerin	150 parts.
Water	to make 300 "

Intimately mix the subnitrate of bismuth and the glycerin by trituration, then heat the mixture in a water-bath, and gradually add to it solution of potassa, under constant stirring, until the bismuth salt is dissolved. Next add a concentrated solution of citric acid until only a slight alkalinity remains. Finally add enough water to make 300 parts, and scent according to preference.

No. 2,188.—**Ink-Tablets** (G. B.).

The demand for these, or for ink-powder, is rather limited, though the form is extremely handy for carrying ink along on a journey, especially on routes where accommodations have to be mainly provided by the traveller himself. A few formulæ for preparing such tablets are here given:

1. Extract of logwood 500 parts, alum 10 parts, gum arabic 10 parts, neutral chromate of potassium 1 part. Dissolve the salts in 500 parts of water, add the extract of logwood and gum arabic, and concentrate the mixture to the consistence of an extract. Then pour the mass out, either into moulds, or into a flat-bottomed dish, and cut it in pieces of suitable size, which may be inclosed in boxes or other receptacles.

2. Extract of logwood 100 parts, gum arabic 10 parts, indigo-carmine 5 parts, neutral chromate of potassium 1 part, glycerin 10 parts, water q. s.; proceed as in the preceding formula.

No. 2,189.—**Hypophosphite of Iron** (Medicus).

In preparing hypophosphite of iron by double decomposition between hypophosphite of calcium and solution of chloride of iron, "in proper proportions," it happened to our correspondent that, on washing the precipitated hypophosphite of iron, only a small quantity of it remained on the filter, the balance redissolving in the wash-water. He asks us for the reason of this, and how to avoid it.

All hypophosphites are soluble in water, and so is the true, unchanged ferric hypophosphite. At least it is so stated by all authorities. The insoluble hypophosphite of iron is probably a modification, differing by the presence of some basic salt. At all events, if the solutions of the two salts are mixed while warm, and the whole then set aside for twenty-four hours, the resulting precipitate will be scarcely soluble. Should the wash-water have dissolved any, it may be recovered by concentrating the washings on a water-bath, when the salt will gradually separate. It may then be washed without material loss. This change of condition, caused by standing, in contact with water, seems to point to some molecular alteration, though this has not yet been proven.

Hypophosphite of iron is also soluble in an excess of either of the two salts from which it is prepared by mutual decomposition. For this reason, the salts should be taken as nearly in molecular proportions as possible.

No. 2,190. **Indelible Document Ink** (Tyro).

The best ink for documents of importance when the writing is to remain deep black is India ink. This, of course, only adheres to the surface of the paper or parchment, and cannot penetrate the fibre. The next best ink is well-made iron ink. This should not be jet-black at the time when it is written with, but should be rather pale, the iron being in a ferrous condition. After it has penetrated the fibres of the paper, etc., and been exposed to the air for a short time, it becomes black. India ink cannot be removed by any chemicals, being highly divided carbon. Iron ink may be removed, though when old it is very resistant.

A very good, permanent ink is Reade's blue ink. This is prepared by mixing a solution of Prussian blue in oxalic acid with a good chromated logwood ink. The solution of Prussian blue is prepared by mixing pure Prussian blue first with about an equal quantity of sulphuric acid, setting the mixture aside for about eight days, then diluting with water, and washing the precipitate with water, until the washings cease to have an acid reaction. The precipitate is mixed, while still damp, with a solution of 1 part of oxalic acid in 5 of water for every 5 parts of precipitate, and solution promoted by gentle warning. The product is then mixed with the chromated logwood ink. This ink looks violet in fresh writing. It gradually turns black. Acids turn it blue, chloride of lime does not destroy it.

Another good safety ink is the following: Heat 1 part of glucose in 25 parts of water with ¼ part of caustic potassa to boiling and add to the dark brown liquid a sufficient quantity of extract of logwood mixed with about 0.1 per cent of its weight of neutral chromate of potassium. This ink looks dark-brownish violet in fresh writing, and is not destroyed by alkalies, acids, or chloride of lime.

No. 2,191.—**Cologne** (J. M. H.).

Have you ever tried the formula for *Spiritus odoratus* of the U. S. Pharmacopœia of 1880? If not, we would advise you to prepare it once and examine its merits. It does not yield a product equal to Farina's cologne, but neither does any other published formula. The best formulæ for cologne are never made public by those who have discovered them after long research and the expenditure of much capital. There are some good formulæ available in the current literature (see this Journal, 1886, page 116).

A most superior kind of cologne, or, more properly, handkerchief extract, may be prepared by the following formula, provided only the finest and freshest ingredients are taken:

Oil of Bergamot	80 Gm.
" " Lemon	30 "
" " Ylang	30 "
" " Neroli, big.	20 "
" " Rose Geranium	3 "
" " Rose	4 drops.
Tinct. of Musk	50 Gm.
" " Tolu	12 "
Acetic Ether	15 "
Orris Root	120 "
Deodorized Alcohol	000 "

Macerate for at least forty-eight hours, at a temperature between 100 and 110° F., replacing any alcohol lost by evaporation at the conclusion of the maceration; then add:

Milk (fresh cow's)	300 Gm.
Deodorized Alcohol	500 "
Tinct. of Benzoin	50 "
Tinct. of Musk	20 "

Cool to 60° F., and filter. To the filtrate add

Oil of Patchouli	1 Gm.
Deodorized Alcohol	19 "

The product may be diluted with deodorized alcohol, if it is found to be too concentrated.

We will append the remark that all such combinations are greatly improved by the judicious application of heat. This must be applied so that none of the volatile constituents are lost. Heating seems to blend the flavors of the different aromatics more effectually. The same thing is accomplished by age; but if the result can be obtained without loss of time, it will be an advantage.

No. 2,192.—**Tincture of Nux Vomica** ("Bromide").

We are asked the question how a tincture of nux vomica made after Mr. Rother's formula (*Am. Jour. Pharm.*, 1883, p. 1; U. S. Disp., 15th ed., p. 1,466) would compare in assay with one made after the process of the U. S. Ph.

It should first be stated that Mr. Rother's formula contains the proportions of drug and menstruum prescribed by the U. S. Ph. of 1870, namely, 8 troy ounces of nux vomica represented by 32 fl. oz. of percolate. The process of the U. S. Ph. of 1880 requires the finished tincture to contain 2 per cent of an extract (weighed as *dry*) prepared by exhausting the drug with a mixture of 8 parts of alcohol and one part of water. On an average, this menstruum yields from 100 parts of the drug 10 parts of dry extract. The latter contains all the alkaloids contained in the 100 parts of the drug, which may be reckoned to amount to 2 parts, about half of which is strychnine. As 100 parts of the finished tincture contain 2 parts of this dry extract, it follows that the latter contain about 0.4 part of mixed alkaloids. The spec. grav. of the U. S. P. tincture is about 0.775. Consequently 100 grains measure 136 minims. 32 fluidounces of it, therefore, weigh, approximately, 23.5 troy ounces, and these, calculated as containing 2 per cent of dry extract, should contain 0.47 troy ounces of this, or 0.094 tr. oz., or about 44 grains of mixed alkaloids. On the other hand, the 8 troy ounces of nux vomica which were made into 32 fl. oz. of tincture according to the U. S. P. of 1870, or according to Rother's process, contain about 77 grains of mixed alkaloids. It will be seen from this that the tincture of U. S. Ph. of 1880 is almost only of half the strength of that

of the U. S. Ph. of 1870. That is theoretically. Practically a complete exhaustion of the nux vomica, by the process of 1870—obtaining 32 fluidounces of percolate from 8 troy ounces of drug—was rarely obtained, and the actual tincture made by the process, as dispensed in the shops, was probably but little stronger than that prepared by the new process.

Since the issue of the last U. S. Ph., the methods of assay of nux vomica have been more thoroughly studied, and at the next revision a more exact method of standardizing the strength of this preparation will no doubt be introduced.

No. 2,193.—**Sulfonal** (Several inquirers).

We have succeeded, at the time of writing this article (June 12th), in obtaining only a few ounces of this new hypnotic, which has been used by observant physicians, without producing untoward symptoms, but also without creating any special enthusiasm regarding its virtues, at least so far. It certainly will not take the place of chloral if its price is kept at the high figure at which it is sold for at present.

Sulfonal has first been reported by Dr. Kast of Freiburg to have soporific powers. It belongs, chemically, to that class of bodies which are grouped together in disulphones, that is, those which contain two molecules of the univalent group SO_2R (in which R represents any monad element or group) united to carbon. The particular body under consideration is an oxidation product of ethyl-mercaptane ($C_2H_5.SH$) with acetone ($CH_3.CO.CH_3$).

Sulfonal (or sulphonal) is prepared in the following manner: dithioethyl-dimethyl-methane is shaken with a 5% solution of permanganate, a few drops of acetic or sulphuric acid being added from time to time. The permanganate solution is added as long as it loses its color. When the color remains unaltered, numerous crystals of the oxidation product float about on the surface. The mass is now warmed on the water-bath, filtered hot, and then evaporated to one-half of its previous volume. On cooling, the new substance, sulfonal (or sulphonal) crystallizes out, and is obtained pure by recrystallization from hot water or alcohol. The composition of the substance is represented by the scheme:

$$\left.\begin{matrix}CH_3\\CH_3\end{matrix}\right\} C \left\{\begin{matrix}SO_2(C_2H_5)\\SO_2(C_2H_5).\end{matrix}\right.$$

It crystallizes in large, colorless plates (or in small laminæ), which are perfectly odorless and tasteless, soluble in about 100 parts of cold, in 18 to 20 parts of boiling water, difficultly soluble in cold alcohol, and rather easily in ether, benzol, or chloroform. Sulfonal melts at 130°–131°C., and boils at 300°C. with slight concomitant carbonization and production of a pungent odor. The distillate has a yellowish color, solidifies to a crytalline mass, and on being once recrystallized again furnishes pure sulfonal. The substance is quite resistant towards acids, alkalies, and oxidizing agents, both hot and cold. It is very easily soluble in concentrated sulphuric acid. On warming this solution, the body is gradually decomposed, and sulphurous acid is eliminated. From its solution in sulphuric acid, sulfonal is precipitated by water.

Concentrated nitric acid dissolves it easily even in the cold, and the resulting solution may be boiled some time without undergoing change. Addition of water precipitates it in this case likewise. Bromine dissolves the body without altering it. On evaporating the solution, the residue, recrystallized from alcohol or water, is found to be pure sulfonal. Caustic alkalies do not attack it even on protracted boiling.

No. 2,194.—**Metaphosphoric Acid Changing to Orthophosphoric** (C. G. K.).

Metaphosphoric acid, as is well known, appears in commerce under the name of glacial phosphoric acid. There are various qualities of this, some of which are quite impure, owing to the fashion of requiring the acid to be cast into sticks, which can only be accomplished by mixing with the acid some fusible salt, usually phosphate of sodium. In reality, this is not added as a salt, but is produced by the addition of a certain proportion of soda.

Glacial phosphoric acid was at one time officinal, but has been subsequently replaced by the tribasic, or orthophosphoric acid. In one respect, this was an error, as there are certain mixtures or combinations in which the presence of orthophosphoric acid is a disadvantage, as it is liable to cause a precipitate or gelatinizing of the mixture. The National Formulary, recognizing the necessity of reintroducing it, at least temporarily, has provided a formula for an "Acidum Metaphosphoricum Dilutum," of approximately 10 per cent, and, among the directions for preparing it, will be found the remark:

"This preparation should be kept in a cool and dark place, and should not be prepared in larger quantity than may be consumed within a few months."

The reason why the keeping of a large supply of this solution is unadvisable is simply this, that an aqueous solution of this acid gradually changes to one of orthophosphoric. This change is comparatively slow in the dark and when the solution is cold, but it is rapidly brought about by heat.

Paul Sabatier some time ago made experiments to determine the rate at which this change from meta- to orthophosphoric acid occurred. He found that the change produced two new acid functions, recognizable alongside of the function of the still unchanged strong acid. The former two functions may be designated as "medium" and "weak." If "Orange 3" is used as indicator, the function of the strong acid alone is visible. Phenolphthalein reveals only the strong and the medium acid. The weakest acid is only qualitatively shown by the so-called "C_4B blue."

The author's experiments on the time required for changing from one state to another were made with a solution of pure anhydrous phosphoric acid in ice-water. The anhydrous acid was obtained by calcining pure crystallized orthophosphoric acid for some time in a platinum crucible. The mass was allowed to become cold in an exsiccator, and then plunged into water at 0° C., which causes the mass to decrepitate and to throw out fragments of a gelatinous appearance which dissolve slowly.

The results below recorded were obtained with solutions containing 40 grammes of metaphosphoric acid in the liter. It was found that the change into orthophosphoric began (though slowly) from the moment that the solution was made. In order to convert the whole of the metaphosphoric into orthophosphoric acid, the following number of days was required at the given temperatures:

At ° C.	=	° F.	
0		32	About 150 days.
14		58	About 30 days.
31		88	About 5 days.
61		142	About 4½ hours.
95		203	About 1 hour.

A 10-per-cent solution will, of course, require a longer time to change. Nevertheless, the change will be very decided even at the end of one month. For this reason it is, perhaps, advisable to recommend that the diluted metaphosphoric acid be prepared fresh when wanted, or only in quantities sufficient to last a few days.

No. 2,195.—**Detection of Lead in the Urine** (Dr. A. L. M.).

When urine is to be tested for lead, in cases of suspected lead-poisoning, after the administration of suitable remedies to cause its elimination, it is necessary to collect carefully *all* the urine voided subsequently, and to examine this in portions, depending upon its volume, perhaps the amount voided in 12 or in 24 hours.

Regarding the process, we can do no better than to quote Prof. E. S. Wood's directions, published some time ago in the *Therap. Gazette*:

"The urine is strongly acidulated with nitric acid, and evaporated to dryness upon a water or steam bath. If a sufficient amount of nitric acid has been added, the residue left will be of a light-yellow color; if it is not, more nitric acid must be added to the residue, and the evaporation continued. When the residue is dry, or nearly so, it may be transferred to a sand bath and heated, when ignition takes place very quickly with more or less deflagration. If proper care be taken in managing the heat, there will be no loss of material on account of the deflagration, and a perfectly white residue will be left. After cooling, this residue is extracted with hot, dilute HCl, filtered while hot, and the filtrate precipitated with ammonia and ammonium sulphide; this precipitate is washed by decantation three or four times with boiling water, then acidulated with HCl, to dissolve the phosphate and sulphide of iron, and allowed to stand until the next day to settle. The precipitate, which will contain sulphide of lead, if any lead was present in the urine, is collected upon a small Swedish filter paper (or other filter free from any trace of iron), washed thoroughly with boiling distilled water, and treated while on the filter with hot *dilute*, pure nitric acid, which liquid is collected in a watch-glass, and evaporated to dryness on a water bath. This residue, which contains any lead present in the form of a basic nitrate, is treated with a drop of water and a crystal of potassium iodide as a *preliminary* test for lead; if lead is present, there will be a yellow streak of iodide of lead. A colored streak may also be produced if the residue contains compounds of other metals, especially copper, bismuth, or iron (compounds of the last metal sometimes becoming introduced in traces in the form of dust, or as a contamination in the filter). If a colored streak has been produced, the residue containing it is moistened with a drop of acetic acid, and washed with boiling distilled water into a small filter, the filtrate being collected in a test tube (perfectly clean). A few drops of dilute sulphuric acid are then added, the test tube stoppered, and placed aside until thoroughly settled. If any lead be present, it will be converted into the form of *sulphate of lead*, which will form a sediment at the bottom of the test tube, often so slight an amount that it cannot be seen until the test tube is gently moved, so as to cause the fluid within to rotate, when the sulphate of lead precipitate will be drawn up in the centre of the fluid in the form of a cone, when it can be easily seen even when present in very minute amount.

"Every precaution, so far as apparatus and chemicals

are concerned, is taken. The crucibles used are Berlin crucibles, and both evaporating dishes and crucibles have been found, by repeated analyses, not to yield any lead. The final test being the formation of sulphate of lead avoids any possibility of error due to the presence of traces of copper or bismuth, which would certainly exist if reliance were placed upon the color reaction with potassium iodide. . . . In well-marked cases of chronic lead-poisoning, even while the patient is being treated with potassium iodide, the amount of lead eliminated with the urine is very small, never exceeding a few milligrammes in 24 hours, and in the majority of cases being only a small fraction of a milligramme. The successful detection of lead in one or two liters of urine in such cases requires, therefore, that the process used should be a very delicate one, and also that it should be conducted with the greatest care."

No. 2,196.—**Pix Canadensis. Hemlock Gum** (L. F. and G. W. R. & Co.).

We have recently had several inquiries as to what commercial substance should be supplied when the officinal Pix Canadensis is demanded. In reply, we have advised our correspondents to employ the so-called "gum hemlock," as this appears to be most nearly corresponding to the description given by the U. S. Ph. The latter was based, many years ago, upon a product rather differing in appearance and properties from what is now usually obtainable. Canada "pitch" indicates, by its name, not a natural exudation of the tree, but a prepared product, having passed through some operations which bring it under the class of pitches (or residues of distillation). Now the substance known as "hemlock gum" is such a product, and is, in fact, the only one which at all approaches the requirements of the pharmacopœia.

It has been shown some time ago (see NEW REM., 1881, 23) that *Abies canadensis* does not yield "spruce gum." This is to be understood as meaning any kind of gum as an exudation. The spruce gum of the market is derived from *Abies nigra*.

Regarding hemlock pitch and tamarac, we have recently been favored by some friends of ours with data which may be of more general interest. They are in the shape of letters, derived from persons practically acquainted with this industry. From these letters we abstract the following:

Hemlock Gum. "Derived from Abies canadensis."

"Of this tree there are two species, the red hemlock and the white hemlock. The red attains the height of about 75 to 90 feet, and 3 to 5 feet in diameter at the cut, and its wood is red except about 1 or 2 inches next the bark, which is very thick and rough. The white reaches to 80 to 100 feet in height, and is not as large nor so rough in the bark as the red. Its wood is white except about 2 inches at the heart. There is but a slight difference in the leaves of the two trees, but the red is not as white beneath. Both are a silvery white beneath, and dark green above. Both are evergreens and flower in May. Northern New York, Canada, Vermont, New Hampshire, and Maine abound in large forests of this tree. The wood is very coarse and brittle, and is used largely as coarse lumber for building purposes, and lasts a great while in or near the ground. The bark is very largely used for tanning leather in this and other countries. Every year companies of five or ten men go into a large forest of hemlock and build a log shanty and cover with the bark, and cut and peel these trees from June 1st to August 1st; the trees are cut down and girdled once in a fortnight, and then with a spud or sharpened stick or iron the bark is easily peeled off, and spread out so as to expose the inside to the sun until it is dry enough to be piled up in cord piles (if it rains it is turned over), with the rough side up, and left to be drawn to depot in winter to be shipped to tanners. After the bark is all piled up, the trees are then cut by two men with a cross-cut saw into logs of the length wanted, usually from 12 to 40 or even 50 feet, and then drawn and skidded, *i. e.*, rolled up on two logs lying on the ground 10 feet apart, so they can be easily loaded on a sled in the winter, to be drawn to the saw-mill. Then the tops are chopped into cord wood and piled for next year's wood. The boughs are in many places distilled, and yield the oil of hemlock. There is never any appearance of gum or oleoresin on a white hemlock tree, but on the red there is some found around the end of dead limbs on the bark, but none on any tree less than about 75 years old. This gum is crumbly and very easily powdered; but no gum oozes from any wound in the wood of these trees as does from the spruce, pine, arbor vitæ, balsam fir, or tammerack trees, and I have lived and worked in and chopped and cut acres of it in all stages and at all times of the year, and have not seen 5 pounds of this gum in all my life; others may. I have seen rolls of a waxy-like gum at drug stores, kept in water, and called gum hemlock, but I have never seen or found any such thing on any tree. But from the earliest history of this country (the Indians taught the white settlers to make a hemlock gum for plasters) every one, to my knowledge, has obtained the so-called "hemlock gum" by steaming the boughs and bark around the knots of the red hemlock as for gum tammerack, or by boiling and removing the scum or gum in the morning, when cold, and reducing it in a water-bath to a homogeneous mass."

No. 2,197.—**Ginger Beer** (H.).

The following is said to make a good preparation:

Place 1 oz. of best unbleached Jamaica (or African) Ginger, well bruised, 16 oz. of crushed sugar, 1½ oz. of parsley root, 360 grains of bitartrate of potassium and 2 sliced lemons into 1 gallon of boiling water. Cover the vessel and stir the contents frequently until at the temperature of about 100° F. Then add 2 oz. of yeast, and keep the vessel in a moderately warm place, so that fermentation may occur. After twenty-four hours pass the liquid through flannel, ferment for a day or two longer, then strain it again and bottle it, securely fastening the corks.

No. 2,198.—**Sticky Fly-paper** (J. D. C.).

This may be prepared by making a mass from

Turpentine	65 parts.
Linseed Oil	34 "
Yellow Wax	1 part.

by melting, and applying a thin layer of it to sheets of strong brown paper, previously well sized with solution of glue or gelatin and dried.

The "turpentine" is the natural oleoresin of the pine, (the officinal *Terebinthina*) and *not* to be interpreted as equivalent to rosin.

Regarding machinery to apply this to paper, we can only say that, if we had to undertake the manufacture of such an article, we would try to devise an apparatus ourselves. The principal points to be kept in view are: 1. To have the mass kept just liquid enough to flow: 2. To cause its even distribution over the surface of the paper, through a slit which may be regulated at will: 3. To feed the paper to the machine in a regular and even manner. We believe that some of the old-fashioned plaster-spreading machines may be easily adapted to this kind of work.

No. 2,199.—**To Prevent Tarnishing of Nickel or Silver-Plating** (S. C., Fort Scott, Kans.).

"Can you inform me if there is any way that *brass* can be nickel or silver-plated so as to stay bright?"

No. No matter what method is employed for plating brass with nickel or silver, the latter will tarnish if exposed to the air. By coating a polished surface with colorless varnish, the tarnishing may be delayed somewhat, but the metallic surface will be injured more or less.

No. 2,200.—**National Formulary** (Several Inquirers).

The following notice received from the permanent secretary of the Amer. Pharm. Association, Prof. J. M. Maisch, will serve as answer to many inquiries received.

The "National Formulary of Unofficinal Preparations," which has been in course of preparation for some time past by a committee of the A. P. A., will be ready for issue July 2d, and will be for sale by the permanent secretary and by the acting authorized agents of the association in the different cities—also by wholesale druggists, booksellers, and others interested in the work. It contains about 190 octavo pages and gives 435 formulas for preparations in daily use by pharmacists and druggists.

Price, including postage, for formulary bound in cloth, 75 cts.; interleaved, $1.10; cloth, raised nails, 90 cts.; bound in sheep, $1.10.

To dealers a cash discount of 33⅓ per cent on these prices.

Preservation of Sulphuretted Hydrogen Water.—A. Schneider of Dresden reports in the Pharm. Centralhalle, that sulphuretted hydrogen water may be kept unchanged for a long time, if it is kept in black bottles, the stoppers of which are rendered air-tight by a *liberal* coating of vaseline. The latter cannot affect the reagent injuriously.

A New Reagent for Copper.—Aliamet recommends a cold saturated solution of neutral sodium sulphite in which a certain amount of pyrogallic acid is dissolved. On adding this reagent to an aqueous solution of copper of medium concentration, the liquid acquires an intensely blood-red color, similar to that produced by sulphocyanides with ferric salts.

The reaction is said to be capable of detecting 1-4,000,000th gramme of sulphate of copper.—*Bull. de la Soc. de Chim.*

Roses in the Caucasus.—Plantations of roses on a large scale are to be established in the province of Kutais of the Caucasus, so that there may be an extensive native manufacture of the otto of roses. At the present moment this is largely exported from foreign States, principally Bulgaria and Turkey, into Russia, and it is the object of the Minister of Domains in promoting this enterprise—which it may be mentioned, is only an expansion of an earlier experiment at Baku—to oust the foreigner and substitute a native industry.

Compound Laxative.—The *Chemist and Druggist* gives the following:—Fluid ext. senna, 1½ fl. drachms; fl. ext. of rhubarb, 4; fl. ext. of cloves, 4; fl. ext. of wormseed, 2; oil of anise, 10 minims; oil of wintergreen, 20; Rochelle salt, 256 grains; bicarb. of soda, 24; fl. ext. of liquorice, 10 fl. drachms; sugar, 4 ounces av.; water, q. s. = 8 fl. ounces. Dose, 10 drops, or a teaspoonful, according to age. This is given as a "substitute for castor oil."